[H.A.S.C. No. 108–47]

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2003-2004/47
Department of Defense Transform

DEPARTMENT OF DEFENSE TRANSFORMATION

HEARING

BEFORE THE

TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED EIGHTH CONGRESS

SECOND SESSION

HEARING HELD
FEBRUARY 26, 2004

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DEPARTMENT OF DEFENSE TRANSFORMATION

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[There were no Questions submitted.]

DEPARTMENT OF DEFENSE TRANSFORMATION

House of Representatives,
Committee on Armed Services,
Terrorism, Unconventional Threats and Capabilities Subcommittee,
Washington, DC, Thursday, February 26, 2004.

The subcommittee met, pursuant to call, at 1 p.m., in room 2212, Rayburn House Office Building, Hon. Jim Saxton (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JIM SAXTON, A REPRESENTATIVE FROM NEW JERSEY, CHAIRMAN, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. Saxton. Good morning—or good afternoon, rather. Mr. Cooper and I are the vanguard here, I guess. I think, Jim, probably a lot of members have anticipated the vote that is going to be coming in a few minutes. But we are going to get started anyway.

The subject of transformation is perhaps one of—I guess I do not want to overstate this, but let me just overstate it anyway—it is probably the most important subject that we have dealt with on this committee in the many years that I have been a member of the committee. Because it is reconfiguring the way we provide our national security. And nothing that I can think of is much more important than that.

And so, to get ready, Mr. Cooper and I and others have been doing a lot of reading. We have shared in several books that talk about the need for transformation and the process and where certain authors think we ought to end up. We have done a fair amount of travel, both domestic and international.

And the purpose of those opportunities to travel was always to see where we are and get people's notions about where we ought to be. And so today is another learning opportunity for us, learning about transformation, but more importantly, learning how we can help you get to where we collectively think we ought to be.

So today, the subcommittee meets to receive testimony from our witnesses who represent the Department of Defense, the military services and Joint Forces Command. The subcommittee is interested in the many programs and initiatives aimed at transforming the nation's military and the department at large.

On September 23, 1999, President Bush announced at the Citadel Military College in South Carolina that he would make military transformation a central theme if he were elected president. He stated that the real goal is to move beyond the marginal improvements, to replace existing programs with new technologies and strategies and use this window of opportunity to skip a generation of technology.

His election and the events of September 11th, 2001 served as catalysts for some of the very changes that had been endorsed for several years past by both outside observers and experts within the military establishments.

Each service has approached transformation with its own vision. And priority is being assigned to those initiatives organized to support interoperability and joint operations.

Congress has an interest in transformation efforts because current choices will shape defense programs and influence budgets for years to come. A great deal of attention is being given to transformation so to understand its necessity, purpose, speed and breadth of effort. For those watching, what are the metrics upon which one can measure transformation and how does one describe it?

While I believe that transformation is the right strategy to pursue, I would like to understand how the various service proposals are indeed transformational. Further, the subcommittee must understand how the new concepts and equipment will be funded and tested under stress conditions. These concerns are particularly important for information technology systems and survivability of new manned platforms, whether air or ground.

In short, with major changes being proposed, Congress must keep a keen eye on the process, the funding and the experiments that will be conducted to evaluate new doctrine, equipment and operational concepts. This is too important to take on faith.

While the concepts may still be fuzzy, we are spending real money and real soldiers will risk their lives with these systems in the future. For example, the Army's Future Combat System seems clearly transformational.

But will the network prove to be too fragile, as some have alleged? And will the platform be survivable?

I know these questions are important to the Army leaders as well. With regard to these questions and similar queries in the efforts of the Navy, Marine Corps and Air Force, I am gratified to know that the Department of Defense science and technology community, from DARPA to the service labs, are all working diligently on various aspects of these issues and making great progress.

At this point, I would defer to a member of the minority who may like to make a statement.

Okay, we are all set. Let me just redirect this question to Mr. Meehan because I know that he has an opening statement because I can see it from here. [Laughter.]

And as soon as he is comfortable, we will hear from my friend and partner from Massachusetts.

[The prepared statement of Mr. Saxton can be found in the Appendix on page 57.]

STATEMENT OF HON. MARTIN T. MEEHAN, A REPRESENTATIVE FROM MASSACHUSETTS, RANKING MEMBER, TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

Mr. MEEHAN. Thank you, Mr. Chairman. I apologize for being late. I actually went to the wrong room. But I join you in welcoming the panelists.

Transformation has become the buzz word in the Defense Department. And Secretary Rumsfeld, since assuming command at the Pentagon, ever since he has been talking about the effort to transform the military establishment.

But within this effort, many misunderstandings abound. Some view transformation as reorganization. Others look at the promise of technological wizardry as the ultimate holy grail of military metamorphosis.

Simply put, transformation is a combination of all of these things. Effective and sustained transformation is both revolutionary, evolutionary. It combines the technological advancement with the doctrine and organizational shifts and relies upon persistent experimentation, as long as the lessons learned are both keenly observed and used to refine tactics, techniques and procedures.

With Hanscom Air Force Base in my district, I am most familiar with and applaud recent Air Force efforts at transformation. But I am also interested in the specifics of other efforts to change and adapt to the many threats facing our nation. I hope that today's hearing and testimony will help all of us in that endeavor to push the DOD in the direction of transformation.

And Mr. Chairman, again I thank you for the opportunity to submit an opening statement.

Mr. SAXTON. Thank you, Marty.

We have one panel today, composed of six witnesses. I want to welcome our witnesses.

And I would also like to introduce them here: Vice Admiral Arthur K. Cebrowski, United States Navy, Retired—the admiral is director of the Office of Force Transformation in the Office of the Secretary of Defense; Lieutenant General Robert W. Wagner, deputy director of the United States Joint Forces Command; Major General John M. Curran, United States Army, director of Futures Center, United States Army Training and Doctrine Command; Rear Admiral Kevin J. Cosgriff, United States Navy, director of warfare integration; Lieutenant General Edward Hanlon, United States Marine Corps, deputy commander of combat development; and Lieutenant General Duncan J. McNabb, United States Air Force, deputy chief of staff for plans and programs. Gentlemen, thank you all very much for being here. We appreciate your participation.

At the outset, I would ask unanimous consent that each of your statements be included in the record and that you try to summarize them. And I would also like to ask unanimous consent that the articles, exhibits and extraneous and tabular material referred to be included in the record; also, without objection.

Admiral Cebrowski, the floor is yours, sir.

STATEMENT OF VICE ADM. ARTHUR CEBROWSKI, UNITED STATES NAVY, RETIRED, DIRECTOR OF THE OFFICE OF FORCE TRANSFORMATION IN THE OFFICE OF THE SECRETARY OF DEFENSE

Admiral CEBROWSKI. Thank you very much, Mr. Chairman. It is a pleasure to be here. And I think most of all, thank you for your interest in this important subject.

Historically, members have played a vital role in advancing the capabilities of the military. And this is a time when perhaps that interest and encouragement is most needed and most helpful. So I look forward to this very much.

First, I would like to make a very short comment about my office and what it does and what our goals are. The Office of Force Transformation is meant to be a catalyst for transformation in the department. Our focus, as the name implies, is on transformation of the force, as opposed to the management of defense.

We are a think and do tank. We do things like studies. But we also focus on specific activities to help advance transformation within the force.

We have basically five goals to make force transformation indeed a part of the DOD corporate strategy and our national defense strategy. Of course, we have had great help from the President and the secretary in doing that.

That is a top-down approach. From the bottom up, our effort is to change the force and its culture through the introduction of experimental articles, prototypes and creating an experience on the part of the forces at large.

Since we are moving into the information age, we need to find a theory of war that is appropriate to the information age. We believe we have that. And we are working toward its implementation.

In the new age, there will be new decision rules and new metrics. The job is to find those and get them promulgated about the force, so people start working toward those.

And of course, what we would like to do is to discover or create or cause to be created whole new capabilities.

We are the only office in the Office of the Secretary of Defense which is dedicated solely to the subject of transformation. We focus on the areas where the rest of the department, in our judgment, is not likely to focus. We have a very broad mandate.

In general, we go where the institution is not likely to go if left to their own devices. So in that regard, we are by design not at all duplicative of other elements of the department.

Because where we find such things, we simply move to another area of interest. Because if the institution is already pursuing these areas, they do not need me to reinforce that.

In that area, we also do what is called concept technology pairing. There are several institutions or parts of the governments which will pursue technologies.

Others will pursue operational concepts. And our technique is to focus on operational concept pairing to achieve a result.

And we have a broad mandate, largely unconstrained, and that is that we can work outside of the normal course. Bound, of course, by law and morality, but other than that, the entire military domain is our operating domain.

And so with that then, the services I am sure are going to talk about what they are doing, as you have asked them to do. And I am sure that will be quite good.

So what I would like to do is just spend a few minutes talking about those things which potentially get in their way to accomplishing transformation, what we call the barriers to transformation. And we categorize them in four parts.

The first of those parts is process barriers. And a lot of work has been done. This is mostly the area of management of defense.

And a lot of work has been done to reduce those. The secretary has stated that he would like to shorten all DOD processes by 50 percent, for example, to speed the time of introduction of new capabilities and simply to get our work done. To the extent that our processes are onerous, then they do inhibit.

The Congress, of course, can help in this. For example, recently the Congress teamed with the department in the passing of the National Security Personnel System Act, which indeed is quite helpful. So that is just an example.

The second area is physical barriers. And when we look at how the force actually operates, we define physical barriers into two parts. One is the speed and movement of information and the other is the speed and movement of things, of mass.

If we look at the—and we have—looked at the department's transformation road maps, we find a very robust effort in addressing the speed of information. A very, very great deal of work has been done there.

But the speed of information somehow has to be matched—or not matched, but coupled—with the speed of things. For example, we talk about moving to the non-contiguous battle space, the non-linear battlefield, if you will. The entry fee to get there is to be networked.

The forces are pursuing that and doing a good job of that. However, you also have to have the mobility systems that will allow you to take advantage of this information structure, so that you can, in fact, achieve this new model for warfare.

The barriers to entry for new mobility systems is very, very high. These things are costly. They tend to take a long time to develop.

But if we are going to achieve this non-linear battle space, we have to be able to surmount those barriers. The encouragement from Members of Congress to, in fact, do that I think would be indeed quite helpful.

And in here, I am talking about such things as vertical lift, heavy vertical lift, somewhat lighter vertical lift capabilities, the ability to blend inter-theater and intra-theater lift, both air and sea, lift to support operational maneuver from the sea, to support operational maneuver from strategic distances. These will be new things.

This has always been an area of great advantage for the nation. And to sustain that advantage, we are going to have to overcome those physical barriers.

The third barrier is fiscal or financial barriers here. And we put these in two interrelated areas. One is the willingness and ability to devolve or devalue older capabilities because the old must fund the new eventually and move on.

This requires courage. And it is quite appropriate that the Congress encourage us in those difficult areas.

To the extent that we do not deal with devolution strategies, we essentially then hold on to our past, become captives to it. And we then thereby undermine our future.

There has always been a role of Congress for this. I recall that the transition for the Navy from sail to steam took 84 years. And the Congress played a significant role in encouraging that transition, or else I am sure it would have been longer.

Under that same category is the relationship between discretionary and non-discretionary funding. And again, to a certain extent, it is what one perceives to be discretionary or non-discretionary. There may be a role for the Congress to help open discretionary space in this to allow for more transformation.

And the last barrier and the one that often gets the most press are cultural barriers. The great transformation gurus point to cultural change as the most difficult, taking the longest.

But this is a part of the story which is truly good news because we have identified that by taking the temperature of cultural change within the department, we have identified that culture is a function of leadership, culture being the sum of the attitudes, values and beliefs of the leaders. And the department is blessed with a great deal of leaders.

That is highly prized. It is taught in the professional schools.

And so we see the results of this vary robustly. And some studies have been done to help us take the temperature of the cultural change.

But this again is an area where leadership, as I said, can be exercised and be very fruitful. The members are indeed leaders. And consequently, your continued and strong encouragement in these efforts of transformation, I think, will go a long way to maintaining and indeed increasing the momentum that we have developed so far.

With that, I will stop.

[The prepared statement of Admiral Cebrowski can be found in the Appendix on page 60.]

Mr. SAXTON. Thank you very much, Admiral. That is a very timely statement and a great place to stop because the bells and whistles that you have been hearing buzzing here in the background are telling us that we have probably six or seven minutes to get to the floor to vote.

There is another vote that will follow this one. So we will likely be back here in 15 or 20 minutes.

Thank you.

[Recess.]

Mr. SAXTON. Admiral, when you were talking about the difficulty in making changes in institutions, it reminded me of this subcommittee because the effort to create this subcommittee started in 1987. And we stood it up on January 1, 2003. [Laughter.]

So institutions do not always do things quickly. And I remember reading somewhere, I think it may have been in McGregor's book or maybe it was in talking to Doug McGregor, about how we got carriers in the Navy.

It seemed that some folks thought that carriers would be a good idea. But all the admirals wanted battleships. And so we could not get carriers.

So Congress passed a law, according to the story, mandating that aviators be put in charge of carriers in the Navy. And so we got carriers.

So sometimes, there are tricky ways that we need to move to get things done. But anyway, okay, we are going to continue our hearing now. The next witness is Lieutenant General Robert W. Wagner.

STATEMENT OF LT. GEN. ROBERT WAGNER, DEPUTY DIRECTOR OF THE UNITED STATES JOINT FORCES COMMAND

General WAGNER. Thank you.

Mr. Chairman, distinguished members of the committee, as the deputy commander of U.S. Joint Forces Command, I am honored to testify on the role of the ongoing process of transforming our Armed Forces.

With your permission, I will make a few short opening remarks and then be ready to take your questions.

Our armed forces fight as a joint force. United States Joint Forces Command deploys fully functional joint task forces, with the enabling capabilities to conduct coherently joint operations.

We advance the joint capabilities of these forces through leading concept development and experimentation, identifying joint requirements and conducting joint training. Simply stated, we supply the joint force for the combatant commanders' use.

We see a significant shift in the way our forces prepare for and conduct military operations. Traditionally, we divided the battlefield into service sectors.

In those sectors, we conducted service-centric operations, where we deconflicted operations across the service boundaries to ensure non-interference. Services alone were responsible for organizing, training, equipping and operating their service forces.

Now let me describe to you how we see the future from an information age perspective. The warfighters conduct operations in an integrated battle space, not on a sectored battlefield. Our coherently joint force is knowledge centric, fully networked and designed to conduct effects-based operations.

We apply joint effects when and where we choose, rather than matching personnel and equipment, as dictated by geography and boundary. We deliver pervasive joint precision fighters and fighter support throughout the breadth and depth of the battle space.

Future capabilities to include combat identification, blue force tracking and the future network force will leverage information dominance and decision superiority to achieve the asymmetric attributes of overmatching power, which are: knowledge, speed, precision and mobility.

To define and deliver these capabilities, Joint Forces Command has established close collaborative partnerships with the combatant commands, the services, the defense agencies, the interagency community and our close allies, to include NATO. We are grateful for the close working relationship we have with Admiral Cebrowski and the Secretary of Defense's Office of Force Transformation and with our service partners here today.

With their help and the great support and encouragement from Congress, we have developed and adapted a dynamic transformation process that is comprehensive and capabilities based, that integrates the lessons we have learned in real time, that uses a rigorous joint experimentation campaign to advance joint warfighting and that produces joint concepts to drive one joint acquisition strategy.

This process, combined with a joint service transformation road map integrates, guides and delivers the transforming Department of Defense. This is a real change. And on behalf of our commander, Admiral Giambastiani, I invite you to visit Joint Forces Command and our service components in Allied Command Transformation, our NATO ally, to see transformation in action.

Thank you, Mr. Chairman. I am honored to testify and look forward to your questions.

[The prepared statement of General Wagner can be found in the Appendix on page 121.]

Mr. SAXTON. Thank you very much, General. Before we go to questions, however, we are going to run down through the service representatives. So we will go now to Major General John Curran.

STATEMENT OF MAJ. GEN. JOHN CURRAN, UNITED STATES ARMY, DIRECTOR OF FUTURES CENTER, UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND

General CURRAN. Good afternoon, Mr. Chairman and members of the subcommittee. As you have heard, I am Major General John M. Curran. I go by Mark for the members that I have met, so that is why there is probably confusion.

As director of the United States Army Training and Doctrine Command's Future Center, I have the privilege to oversee the developmental aspects of the Army's future force and then also serve as the soldiers' representative to the development community.

I appreciate the opportunity to appear before you today. And I welcome the chance to discuss how our Army's initiatives and long-term goals link with our joint partners.

The imperative for America's Army to change rapidly has never been more compelling than today. The reasons have been visible, visceral and real.

September 11 constituted a strategic inflection point. It showed the outline of a new kind of threat and shadowy enemy that our military and our nation would be called upon to engage around the world. This new kind of attack broke from past practices and assumptions that were the foundation of U.S. defense planning.

The enemy did their threat assessment much as we do ours. They concluded that they would fail if they were to engage the United States in a head-to-head conventional fight like Iraq did in 1990 and 1991.

Our enemies developed new strategies focused on new techniques and operational methods. Using dysfunctional nation states as sanctuaries, terrorists, rogue actors and non-state adversaries sought to exploit the tools of modern societies and science to attack where the U.S. was most vulnerable—directly against our homeland and interests abroad.

To fight more effectively in this operating environment and engage a more elusive enemy, the Army must accelerate its transformation efforts. The transformation from the current to the future force must happen at a pace beyond that which the institutional Army moved in the last years of the 20th century.

The Army of the future must be agile to conduct simultaneous, distributed, non-linear operations. The Army of the future must be lethal to enter and fight at multiple austere entry points.

The Army of the future must be networked through shared, enhanced situational awareness from global and robust joint command and control and intelligence. The Army of the future must be precise to strike the enemy's source of strength and rapidly achieve desired effects.

The Army of the future must be rapidly deployable, with a smaller logistics footprint with robust reachback for required support. The Army of the future must be modular to give regional combatant commanders the capability to rapidly apply decisive land power at the right place at the right time with the right forces.

The Army of the future must be born joint, a member of an interdependent team, so that the synergy of joint operations is ready to unleash the full military power of the United States. These characteristics describe an Army that will be different from the Army that fought in recent campaigns. Our transformational path will also be different compared to past change.

We must have robust, but focused, experimentational effort that is fully coordinated with the Joint Forces Command and our service partners. We will work together to develop concepts that define how we fight in the future and how we deploy, employ and sustain ourselves.

Those concepts will lead to testing prototypes and techniques, some of which will be deemed good enough to spiral into the current force and others that will need more work. Either way, they provide us with valuable insights to refine our concepts and our thinking.

We must accelerate change for the current force, the current force that is now winning the nation's wars, to the future force that will be even more relevant and ready. Lessons from Operation Iraqi Freedom and today's operations must be spiraled into the current force.

We cannot focus on just materiel solutions. We must harness together all of the supporting enablers to be successful on this transformational path.

This includes robust doctrine, new forms of organization, innovative joint and combined training, comprehensive programs to grow future leaders, continued energy at assessing the right people through our recruiting process and then building the right kind of facilities to help us train and retain the very best Army for the future.

We in TRADOC and in the Army must use every avenue available to inform and prioritize our efforts. We will steward our resources by synchronizing our efforts with those of Joint Forces Command and the other services.

We face significant challenges. But they are not insurmountable.

Undergoing change while in contact heightens the importance of getting it right the first time. As I appear before you today, the 3rd Infantry Division is reorganizing into a more modular force. We are actively searching for opportunities to insert materiel and non-materiel capabilities that will enhance our current force, while we keep pace to establish the first future combat system equipped formations.

Together with Joint Forces Command and the other services, we are forging partnerships that will create a synergy equal to the challenges that we face.

Thank you for the opportunity to be here today. And thank you for what you do for our service men and women for this great nation. And I look forward to your questions, sir.

[The prepared statement of General Curran can be found in the Appendix on page 72.]

Mr. SAXTON. Thank you very much, General.

Admiral Cosgriff.

STATEMENT OF REAR ADM. KEVIN COSGRIFF, UNITED STATES NAVY, DIRECTOR OF WARFARE INTEGRATION

Admiral COSGRIFF. Thank you, Mr. Chairman, Congressman Meehan and distinguished members of the committee, good afternoon. Thank you for the committee's support to all of our soldiers, sailors, airmen and marines that we are honored to represent here today and for the opportunity for me to discuss how navy participates in the larger joint transformation effort.

The success we have experienced recently in combat is in large measure a result of those who have worked to assure it over the many preceding years; many of them in Congress and some of them still here today. Your investments in our people, our readiness and our advanced systems enables the Navy to improve our capabilities to the high levels that we enjoy today.

Beyond the Navy, Operations Enduring Freedom and Iraqi Freedom were the most joint operations in our history. And they confirm the wisdom of pursuing capabilities within a joint context, a context that enhances our shared power projection, our collective protection, our freedom of maneuver and the networks and other knowledge systems and the techniques that knit all the services even more tightly into the joint fabric.

Successful as we have been in the past however, we recognize the imperative to prepare for an uncertain future. The Navy, within the naval power and sea power 21 constructs, alongside the United States Marine Corps, have organized around seabasing as our central concept for projecting and sustaining naval and joint power globally from the sea.

To this end, we have embraced the capabilities-based approach to forming the Navy of tomorrow that, with your help, will enable us to achieve greater operational employability. Global CONOPS, fleet response plan and flexible deployment concepts are representative of this.

We wish to strike with increased speed, reach and precise lethality for more distributive formation. And getting global CONOPS anticipates this, as do some of our platforms, such as JSF and DD(X). We wish to provide a multidimensional defensive shield, at sea and ashore, around joint forces, allies and indeed the homeland.

We want to exploit our nation's asymmetric advantage to operate jointly from an independent, secure, mobile sea base. And last, we want to be networked fully from the sea bed to space within the Joint Force. And that is what FORCEnet, within our sea power 21 construct, is about.

We believe that naval transformation supports joint transformation by the enrichment that comes from our experience and our service-provided capabilities. With your continued support, naval transformation will progress through new operational concepts, new technologies, new processes and new organizational structures.

Thank you all again for the opportunity to be here and talk about your Navy and transformation. Thank you.

[The prepared statement of Admiral Cosgriff can be found in the Appendix on page 82.]

Mr. SAXTON. Thank you, sir.

General Hanlon.

STATEMENT OF LT. GEN. EDWARD HANLON, UNITED STATES MARINE CORPS, DEPUTY COMMANDER OF COMBAT DEVELOPMENT

General HANLON. Mr. Chairman, Mr. Meehan, gentlemen, thank you very much for the invitation to be here today and share the afternoon with you.

As the commanding general of the Marine Corps' Combat Development Command just south of here at Quantico, I have—we have—been given the lead for transformation. The Marine Corps has been the nation's general purpose force for the past 60 years. And we are proud of that.

And because of that, we have been prepared for employment in any situation from so-called low-intensity military evolutions such as non-combative NATO operations and stability operations up to and including major combat operations. Even during the height of the Cold War, we viewed ourselves as the nation's utility infielder, ready to be played wherever necessary to meet the needs of the nation.

But to be a utility infielder meant that, as an institution, we had to be adaptable and open to new concepts, technologies and warfighting techniques. When the notion of transformation appeared in the lexicon a few years ago, we saw it as a relatively descriptive way of how we, as Marines, operate.

Our former commandant, General Jim Jones, described transformation as an exponential improvement in current capabilities or an entirely different or revolutionary new capability. I think that sums it up pretty well.

Just a few short years ago, the Marine Corps adapted the concept of operational maneuver from the sea. And Admiral Cebrowski referred to that in his comments.

While historically, we always operated that way, what we envisioned was the ability to strike from along the littorals over long distances and with unprecedented lethality. We just were not sure how to do it.

However, in Operation Enduring Freedom in Afghanistan, Marines operated more than 500 miles from our sea platforms. Candidly, Mr. Chairman and gentlemen, it surprised even us.

In Operation Iraqi Freedom, we deployed a force of over 50,000 Marines in just over 50 days, then attacked north to participate in the seizure of Baghdad and then quickly on to Tikrit when told to do so by the regional component commander. That was a distance of 430 miles.

These real world operations against terrorism demonstrated the effectiveness of the concepts upon which we have based our transformational processes. Today, in very close concert with the Navy, we are examining ways in which we might further transform our capabilities in order to operate with even greater speed, greater lethality and better strategic agility.

Our Capstone concept, which we refer to as expeditionary nuclear warfare, describes our approach. Our concepts for seabasing and the use of expeditionary strike groups will enable us to project unparalleled joint military power from the sea.

When access to sea ports and territorial space is uncertain, as we saw during Operation Iraqi Freedom, these capabilities will become even more crucial in the future. We know that future adversaries will attempt to deny us access. And our combat development process is preparing us for those challenges.

Mr. Chairman and gentlemen, as you can see from the very panel in front of you, what we will do will be and must be joint with context and application. As part of my responsibility for executing the transformational processes of the Marine Corps, we established an Office of the Marine Corps Combat Development Command at the headquarters of Joint Forces Command down in Suffolk, specifically to ensure that our efforts proceeded within the joint context.

And let me publicly applaud and acknowledge the superb efforts of Joint Forces Command in bringing these joint capabilities together.

And finally, Mr. Chairman, the ultimate success in transformation, I believe, will be measured in the outcomes of battles yet to be fought and hopefully, by battles we will not have to fight. For the goal is to develop capabilities against which our potential enemies cannot defend. And we want them to know that.

Or, put another way, we become the asymmetric threat to them and to which they cannot defend. The goal is to achieve our national goals without resorting to full-scale war. I believe that is what transformation is all about.

Mr. Chairman, thank you very much, sir.

[The prepared statement of General Hanlon can be found in the Appendix on page 106.]

Mr. SAXTON. Thank you very much, general.

And finally, we will move over to our Air Force friend, General McNabb.

STATEMENT OF LT. GEN. DUNCAN MCNABB, UNITED STATES AIR FORCE, DEPUTY CHIEF OF STAFF FOR PLANS AND PROGRAMS

General McNabb. Mr. Chairman, Congressman Meehan and other members of the subcommittee, thank you for the opportunity to discuss with you the ongoing transformation of the United States Air Force. And as Vice Admiral Cebrowski mentioned, we are very much appreciative of your interest and support in making true transformation a reality. It is literally the only way we can get to the future military the Nation needs and deserves.

Military transformation has become a much-used term. For most folks, transformation is synonymous with technology.

This is especially the case with the U.S. Air Force, which has made some of the biggest technology breakthroughs of the past 100 years, including jet propulsion, supersonic flight, intercontinental flight, guided missiles, nuclear technology, spacecraft, space-based communications, precision navigation, all aspects of stealth and precision munitions. And that is the short list.

As Congressman Meehan mentioned, newer and better technologies are always critical. Yet they must be married to the proper operational concepts—or CONOPS—and innovative organizations if we are to accomplish the missions that were previously impossible except at prohibitive risk and cost.

This marriage of technology, CONOPS and organization has to occur across service lines, as has been mentioned. One of the prerequisites for transformation is that we close the seams among the services, to provide the Joint Force commander with the most effective solutions to conduct a broad range of joint operations.

We have made significant strides along these fronts in the combat laboratories of Afghanistan and Iraq. Think of the airman on horseback in Afghanistan with a GPS transceiver and a laser range finder, directing a 42-year-old B–52 bomber to drop GPS-guided munitions within 800 meters of friendly forces.

If we want to know about transformational effects, we can ask the Northern Alliance. Or better yet, we can ask the Taliban or al Qaeda. Or best yet, we could ask the Iraqi Republican Guard that got defeated wholesale during a dust storm when they could not see their comrade standing 15 feet away from them.

During the race to Baghdad, the Marines, the Army and Special Operations Ground Forces bet their lives on air and space power in ways they had not done in the past. And these bets paid off in spades.

They paid off in responsive, accurate fire support to our partners on the ground, in a persistent ISR net which gave us unprecedented situational awareness and targeting capability, in rapid resupply and troop transport provided by a new, nimble use of the C–17—that Congressman, I know you know so well—and in a robust space umbrella which provided the architecture for unhindered, secure communications and precision navigation that changed the face of warfare.

Afghanistan and Iraq have taught us that transformation requires commitment, innovation and constant adaptation. Today, the Air Force is emerging from these operations with a renewed focus on the war you engaged on the ground.

Through an emergent program called Battlefield Airmen, even more of these warriors will be Air Force. We are working to focus our ground warriors, combat controllers, the pararescue men, the combat weather men, the tactical air control parties, et cetera, with a common organizational and training structure to strengthen the combat power they bring to the battlefield.

This has engendered a trust and confidence and truly joint operations that have inspired all the services to work harder to close the seams.

To support the joint force commander, the Air Force has laid out a coherent transformation strategy: one, work with all the services and agency partners to enhance joint warfighting; two, aggressively pursue innovation; three, create flexible, agile, transformed organizations; four, build a capabilities and effects-based planning and programming process; fifth, develop and field new transformational capabilities as rapidly as possible; and finally, to break out of industrial age business processes by embracing information age thinking.

My written testimony summarizes these efforts and the U.S. Air Force transformation flight plan details them.

In summary, I would simply like to highlight that this is an exciting time for our Air Force. We are engaged in developing new strategy and new concepts of operations to meet an entirely different set of challenges and vulnerabilities.

Technology is creating dynamic advances in information systems, communications and weapons systems, enabling the joint commander to understand the enemy, deploy forces and deliver more precise effects faster than ever before.

In addition to pushing the envelope technologically, we are creating flexible, agile organizations to facilitate transformation and institutionalize cultural change. With the maturation of our air expeditionary forces or AEF, we as an institution have adopted a thoroughly expeditionary mindset.

It is engrained in Air Force culture, with 75 percent of our personnel now postured to deploy—ready and responsive.

Like never before in our history, we are a total force. And we continue the transformation of how we integrate the Air National Guard, Air Reserve forces, the civilian force with the active duty to leverage each component's comparative strength. In fact, as mentioned in my written testimony, we have over 11,000 Air Force reservists alone assigned to associate units in mission roles, flying and maintaining aircraft.

When you include the reservists drilling with the active duty or serving as IMAs, the number increases to over 29,000. Most importantly, we are transforming the way we develop our airmen, so they understand the nature of the changing security environment and are encouraged to think outside the box.

Our airmen are more educated, more motivated and better trained and equipped than any time in the past, especially toward the joint warfight.

Transformation, however, should not be achieved at the expense of conducting current vital operations. There must be a careful balance between these requirements and our investment in transformation.

We must fight the war today and prepare for the one tomorrow. We believe our program achieves that proper balance.

The Air Force will always excel in providing air-and space-focused capabilities to the joint warfighter, while enhancing the capabilities of soldiers, sailors and marines. The diversity and flexibility of Air Force efforts and capabilities provide unparalleled value to the Nation and make the whole team better.

The Air Force will continue to work with the rest of DOD and our joint brethren and sisters to keep transformation focused to provide the capabilities required for the Nation in the 21st century.

Thank you, Mr. Chairman.

[The prepared statement of General McNabb can be found in the Appendix on page 95.]

Mr. SAXTON. Thank you very much, general.

We are going to move to member questions at this point. And we will start with Mr. Meehan.

Mr. MEEHAN. Thank you, Mr. Chairman. And thank you to all of the panelists for outstanding testimony. It really informed. And members of the committee are appreciative.

Admiral Cebrowski and General Wagner, we are told that the Joint Forces Command will increasingly play a larger role in the development of joint concepts, operations and efforts to integrate information technology across all the services. My understanding is that the best lessons are often learned from experimentations.

Given the stated importance of jointness in the days ahead, are you correct to assume that large, robust, realistic, joint experiments will be conducted with networked information systems? And if so, how will these experiments be funded? Would it be through Joint Forces Command, the individual services or through a combination?

General WAGNER. Sir, if I may start to answer that question, we agree exactly with your point on your points of experimentation and the joint concepts and how we have to bring them together and the partnerships and then the question of the large experiments.

What we have done in partnership with the services is develop an experimentation concept development plan, where we look at the concepts we need to exercise. And whereas, in the past, the services did separate exercises and wargaming experiments, we now do them in partnership.

And we have established a common framework for those to do them in so we can progress over time and take different segments and look at them over time to develop the concepts. So we can spiral what we learn from one to the next.

So what you have is a separation from individual service experimentation and campaigning as the sole way of doing it to an aspect now where we integrate service wargaming experimentation and we can take the different segments over time and look at them. So the development plan, this program that we really feel is getting the synergy of the service plans in a joint context.

That is part of the answer. So we have a different way of doing it, a joint way of doing it.

And then for the scope, we do that in a number of different ways as well. Part of it, some of the exercises can be designed to look at that. But you also look at our new way of doing the training, with the joint national training capability, where we are able to leverage forces throughout the country in an exercise and exercise the command and control as part of that.

So again, we have taken things that before were separate service exercises and integrated them into a training concept, so we can exercise joint operational command and control on a broader scale because we are now doing our exercises together. And that, in fact, is being done at very little additional cost. Because these are exercises that were scheduled, but they were being done separately by the services.

So now you can be sitting in a live, virtual and constructive scenario with the forces sitting on the East Coast, the central part of the States and the West all part of the same exercise, being able to exercise their real command and control communication system as part of an exercise. It really is a transformational way of training that lets us look at the bigger system. Does that answer your question, sir?

Mr. MEEHAN. Yes, General Wagner. But in other words, the funding for these experiments though, are they through Joint Forces Command? Or are they funded through the individual services? Or is it a combination?

General WAGNER. It is a combination. And in fact, a large part of our budget goes to providing funds to services to participate in our training and in our experimentation. So there is service funding and there is also joint funding. But I think we are able to leverage that to great advantage by, again, making it cosponsored between services and joint.

Mr. MEEHAN. Admiral, I do not know if you have anything to add?

Admiral CEBROWSKI. The only thing that I would add is that we have found there is a great premium on number over scale, if you will, to have a large number of much smaller efforts going on which were then networked. And you can harvest from more events with more people over a greater continuum, that there is a greater payoff to that. So that is the thrust.

Mr. MEEHAN. Thank you.

Admiral Cosgriff, could you tell us about the importance of electronic propulsion to the Navy and how we might, through electronic propulsion, might transform naval operations?

Admiral COSGRIFF. Yes, sir. I think the key there is to, as your question implies, is to expand our thinking beyond simply powering the ship through the water. And what we aspire to do through electric drive, first is learn what it takes to generate larger amounts of electricity within a given hull, make that electricity first available for operation of the propulsion and supporting systems and then, over time, once we learn how to condition that power—manage it, if you will, in the amounts that we intend to generate—be able to apply it to other uses, the most obvious of which, in the long term, would be electric weapons or electric-based weapons.

In the near term, sort of as a transition from propulsion unique, we will be looking at that in the CV 21 program to look at electric uses on the catapults and other such things as a stepping stone in that technology.

In the S&T world, we do have a program ongoing to take a look at—and I believe we are still partnered with the Army on this or have leveraged with the Army on this—to look at a rail gun, basically an electric gun.

Mr. MEEHAN. Thank you.

Thanks, Mr. Chairman.

Mr. SAXTON. Mr. Wilson.

Mr. WILSON OF SOUTH CAROLINA. Thank you, Mr. Chairman. And as a recent retiree of the Army National Guard, I am very interested in the restructuring of the Army.

And for General Curran and General Wagner, with the current schedule of restructuring of Army divisions into brigade-size forces, when will the first transitions be accomplished? And how will they be comprised?

General CURRAN. Yes, sir. Thank you for that question. The first units that transition or transform to the new modular design will occur this year. It will occur in the 3rd Infantry Division. And it will occur in the 101st Airborne Division this year.

Our overall plan is to transition all of our divisions, active duty divisions, during the next 3 years. Our national guard brigades will also be transforming to the new design throughout that same period.

Mr. WILSON OF SOUTH CAROLINA. So it is coming very quickly.

General CURRAN. Yes, sir.

Mr. WILSON OF SOUTH CAROLINA. And additionally, another interest that I have, I have one son who is in field artillery. And he has been retrained for light infantry for munitions collection in Iraq.

And then I have another son who I hope I advised correctly. He was interested in military intelligence or Signal. And I suggested to him Signal.

And I do not want to get into any conflict back there between branches. But on advising young officers into branches, do you have any advice?

General CURRAN. Sir, I would recommend that any branch in the Army that your son——

[Laughter.]

But I would say there is great growth in the industry in Signal for sure and military intelligence as well. What you were alluding to though in your first example is that part of this transformation is also to rebalance the force. So you do see, within the force, nearly 100,000 spaces and people being changed from military occupational specialties or units that are not as much in demand to military occupational specialties or units that are in great demand today.

So we are rebalancing the force as well, nearly to the tune of 100,000 folks who are moving from either becoming what could have been an artillery man to becoming a military policeman or an infantryman, as you pointed out. So that is also part of it.

Mr. WILSON OF SOUTH CAROLINA. And additionally, I had the opportunity to be present when the first Striker vehicles were presented to the Army. And I am happy to hear that the Striker brigade combat teams have proven successful in Northern Iraq.

Can you elaborate on the metrics of determining the level of success? And now that we know more about this Striker, are there others that they can be improved upon?

General CURRAN. Sir, the Striker brigade deployment and employment into Iraq has been successful and up to our expectations. You are exactly right.

We have placed the Striker brigade in the battle space of what initially was a three conventional brigade set. Now over time, we have increased the amount of Iraqi security forces that have joined us in providing security within that area. But just the mere fact that the battle space that the Striker brigade is now responsible for was earlier the responsibility of three brigades, that is telling.

Part of the reason they are able to do that is because of their increased infantry strength and because of their increased network capability that is organized within that formation.

As far as metrics go, as you know, there was extensive testing and evaluation and preparation prior to this Striker brigade being employed, as we are doing with the next Striker brigade. Btu Iraq offers us a very effective laboratory. I mean, it offers us an opportunity to further learn and refine and develop—to spiral, if you will—additional capabilities.

In the case of Striker today, we are using the opportunity here to further validate the mean miles between failure on the particular platform. We are looking at the organizational construct to see if there are lessons that we can learn from it to be spiraled either back into Striker, the modular force or into a future force. And we are looking hard, from a platform perspective, the operational readiness rate as well, which we can learn from because of the high OPTEMPO that they are operating under.

We have made some improvements as we have gone along. And I would imagine that we will continue to make improvements.

Just some short examples, I do not have the full facts. But the flat armor which you have seen, of course, has been applied to the platforms to give them a RPG standoff capability. We have added some additional mounts on the back for the 240 machine gun, to give them more of a rear mount capability, to give them more 360-degree weapons capabilities.

And on the reconnaissance vehicle, I know we have put some additional steel panels to provide additional protection. Those are just some of the things that I know that have been kind of spiraled into the Striker since it has been employed.

Mr. WILSON OF SOUTH CAROLINA. Thank you very much.

And Admiral Cebrowski, I would like to comment to that you had indicated you visited Fort Irwin and the National Training Center. I had the opportunity to participate in a rotation with my brigade 4 years ago.

And the reality of it was absolutely extraordinary then. And I know it has improved now.

But it really makes me feel good as to the professionalism of our military. And I had an opportunity to visit Parris Island and see the training there. They tried in 3 days to get me in shape.

But it was, again, I am just so proud of what all of you have done and what you mean to our country. Thank you very much.

Mr. SAXTON. Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman.

First question is for Admiral Cebrowski. Transformation efforts certainly seem to focus on warfighting. Over the last 12 years though, we have been—you had mentioned—involved in at least six different nation building efforts; some successful, some not, some the jury is still out.

But since one element of our national security strategy is the establishment of democratic institutions and we are seeking certainly to diminish the role of failing states and failed states in creating havens for terrorists and potential terrorist organizations, what role and what discussion is taking place with regards to establishing some level of permanent post-conflict stability operation within the military to account for this, so far, what has been an every other year exercise, on average, over the last 12 years? And I do not mean sort of cleaning up after major operations, but sort of getting in there and making sure things are stable and getting things in place.

I am not trying to make a statement here as much as I am trying to say there is a reality that we are continually trying to deal with after every time we deploy our military. And what are we doing then, within transformation, to try to create some stability within our own military—and certainly within our own military—that this is part of what we have to do in the future?

Admiral CEBROWSKI. There is a robust discussion of this going on within the Pentagon leadership. The view that many of us have—and I have certainly advanced—is that these missions—say, stabilization missions—are important, difficult and very dangerous. Those are not second team missions.

Mr. LARSEN. Right.

Admiral CEBROWSKI. That is not for some constabulary force. That is for real soldiers and marines to be doing. And so we are talking about first-tier people with first-tier training in order to do these kinds of things.

It also invites attention once again to the active and reserve component mix because frequently skills are available elsewhere. And so this then also becomes an area of review.

It invites attention into supporting technologies. For example, non-lethal efforts, to what extent do they need to be further developed specifically for the kinds of missions that you have in mind?

There are also social and cultural intelligence, language skills. When we review the service road maps, we see an elevated interest in those.

But an important feature is that these missions—and I think you alluded to it—are not necessarily just for after major conflict. They are generally useful, generally valuable to have in the force.

Furthermore, like so many of the things we do, they hinge on the relationships that we develop. Hence, it is really not appropriate for, say, a pickup team to do these things because then you will not have developed over time, before the event, the relationships which are necessary for success.

So those are all in the mix of the elements that are being discussed. Those are largely my views. How that will be implemented in its particulars, that remains for the various components and the leadership to work out.

Mr. LARSEN. You mentioned it is a robust discussion. Is your office part of that discussion, that robust discussion? Making that part of transformation?

Admiral CEBROWSKI. We have made an input to it, you might say a catalytic input. We had sponsored a study on the subject several months ago. And that has been briefed around quite fairly.

Mr. LARSEN. General Curran and General—I cannot read that far. Hanlon, sorry. I apologize. Since a lot of these operations tend to fall on the Army and the Marines, not to exclude others, but they tend to fall on your folks, do you want to provide any comment to the question about transformation and the role of stability operations?

General CURRAN. Just merely to reinforce what Admiral Cebrowski pointed out. There are a number of initiatives in areas where we are looking to improve the capability of the land force to conduct these kinds of operations. And so from a military perspective, from the particular roles and missions that we have from the military, we continue to focus on: how can we fill in the gaps that our forces may have in that piece?

But it is, when you get into these kinds of operations—and I believe this is also what Admiral Cebrowski was alluding to—it is a country team issue. It is an issue that is interagency.

It spans in addition to the military. So these are discussions that need to—and are, I believe—our standing beyond military capability, just looking at what the whole team needs to provide in these kinds of environments.

Mr. LARSEN. Sure. Appreciate that.

General HANLON. Sir, I would just dovetail on that by saying traditionally, in these kinds of operations, it has usually been the Army that has had to bear the brunt of that. I mean, the Marines have always been lucky enough to be up front. And then when it is time to do the peacekeeping, peacemaking, usually it is—like in the Balkans—usually the Army is the one that has had to bear that burden.

Iraq has been interesting. It has been a change. Because the PERSTEMPO, OPTEMPO has been so tough on the Army that we have had to—you know, we are sending 25,000 Marines back in to backfill and assist in that regard.

We have had to go back and we have had to relook at some things, sir. I have to tell you, in fact, the Marine Corps University is part of my AOR down at Quantico. We have a major event taking place in April which is going to look at exactly what you just asked.

We have gone into the books. And we have done this before.

Vietnam, for example, is an example. We used to use the CAP, the civil action program, which is very successful. And we brought back some of the individuals that were involved in that to take a look at how we might apply the lessons learned from that into Iraq.

They are not exactly the same situation. They are different in a way. But there are similarities.

So we are relearning. We have an ongoing effort, through our warfighting lab as well, to capture as many of the lessons learned that we are gathering from both the Army experience, our own experience and how we can turn that into day-to-day peacekeeping techniques.

So your question is a very valid one. I will just say one thing to you though, that I think if you start with a well-trained soldier or a well-trained Marine, well led, they can adapt and do the mission. I really believe that.

Thank you, sir.

Mr. LARSEN. Thank you.

Thank you, Mr. Chairman.

Mr. SAXTON. Thank you.

Mr. Thornberry.

Mr. THORNBERRY. Thank you, Mr. Chairman.

Admiral Cebrowski, can you tell me briefly what the transformation initiatives program does, that I think your office administers?

Admiral CEBROWSKI. Thank you, sir. The transformation initiative program is really not centered on my office. I am just the, you might say, the custodian for the effort. And the real focus is into the regional combatant commanders.

And it stems from the realization that we need to have as broad a base in experimentation as possible, inviting as many people in as possible, but also aware that opportunities for experimentation are opportunistic and fleeting. Our regional combatant commanders have these opportunities to do something by virtue of the fact that they are engaged in some contingency or they are involved in a training exercise with perhaps one of the potential coalition partners or allies in their region or because there is a small but important piece of technology that suddenly becomes available and it marries up with one of these opportunities.

And so we have an opportunity concept technology pairing that appears suddenly. And we can go ahead and leverage that.

But virtue of the fact that there is a relationship amongst all of the combatant commanders, they can stay well plugged into Joint Forces Command and they can benefit from this. So this is a relatively small amount of money. It is meant to be spent in the year exactly that it is obligated. It is not for an ongoing program.

Mr. THORNBERRY. It is taking advantages of opportunities, it sounds like.

Admiral CEBROWSKI. That is right.

Mr. THORNBERRY. Well, then, you said a relatively small amount of money. My understanding is it is less than $10 million. Is that really enough to do any good?

Admiral CEBROWSKI. Well, you are not going to cover too many opportunities for $10 million.

Mr. THORNBERRY. That is my concern.

Admiral CEBROWSKI. And when we were putting the program together and discussing it with various people, our attitude was that we wanted to put a ceiling of $5 million per opportunity. It may only be $500,000 for an opportunity. But we felt as though we wanted to have a reasonable upper bound to expectations and then we could explore above that as a separate deliberate action.

This is very streamlined. The combatant commander submits his request.

We convene immediately a panel to decide on it. We give the money to him and he must obligate it immediately. If he does not obligate it immediately, the money comes back to be used elsewhere.

Mr. THORNBERRY. I hope we can do more of that. I wanted to ask you one other major question.

In your written testimony, you have a copy of a chart that is titled, “Candidates for Action Now.” And then it says, “Identify Issues of Regret.”

I guess one of the things that motivates me the most about the idea of transformation is that throughout history, the powers have had issues of regret. It may not always be a technology.

It may be something else. But some change they are unable to make, and looking back, it plays a central role in whether they continue to be a great power or not.

Now I do not know if that is quite the scale that we are talking about here. But it seems to me what you are talking about are some things we better attention to or one day we are going to look back and regret not having paid attention to them. And I would like, in the brief time we have, for you to at least kind of give us an overview of these elements you believe we need to pay attention to now or we may regret it.

Admiral CEBROWSKI. These items could be at the scale that you are talking about. For example, directed energy has the potential to dramatically change the character of war. Yes, the nature concerning its violence and whatnot remains the same, but the character—how forces will react, the behavior, the risks involved—can change dramatically.

We are not talking about an order of magnitude change by virtue of moving to directed energy weapons. We are talking about several orders of magnitude of change.

We want to be in the lead of this. All of the services are making some investments in this area.

We believe that those investments are critical, need to be coordinated, but not winnowed. We need the diversity of the multiservice approach. But at the same time, we need to take a greater view of it for its impact on warfare at large, and therefore, be placed into a joint construct.

Consequently, I believe that I expect that the department will mandate that there be a joint directed energy road map or some type of tool be produced to direct that. So that is a very specific and powerful one.

Within that, for example, is the technology for what we call redirected energy. Directed energy, of course, is not affected by gravity, so you cannot get it over the horizon unless you are willing to pay the money to put it up on orbit or something like that.

But we know that it is very valuable. The Army, for example, has conducted experiments in which they have been able to shoot down artillery rounds with directed energy.

So this is very, very powerful work. And we think that this relay system for energy to allow its broad use could be the fulcrum to establish a joint capability and move us forward.

Another area, of course, is in non-lethals, which addresses the earlier question with regard to stabilization forces. We need to advance that.

We cannot have our soldiers confronted with the binary decision of either applying lethal force or accepting unacceptable risk. So we need to broaden the capability there.

We need to change the logistics system. Logistics has always been central to the military. But it has also been a drag on what the military could do.

And right now, it is a drag on transformation because so much money and so many people are absorbed in logistics processes, that we need to reach for new constructs, which is one of the reasons why our office is supporting the effort in sense and respond logistics.

We need new approaches to intelligence as well. We need to move away from bomb damage assessment and get into effects-based assessment, where we look more broadly at the consequences of our actions on the battlefield and on a very, very tight timeline. So this is another area.

I am also concerned about biomedical defense, actually a whole robust biomedical program—passive, active, offense, defense. We took control of the biological battle space in the 1930's with hygiene and antibiotics.

And now, because of these advanced technologies, we are at risk of losing that control. And so work has to be done there.

This is another area we would profoundly regret not having paid attention to this area. So that is the way we are talking about these items.

Mr. SAXTON. Thank you, admiral. And we are going to have time for another round of questions here.

Mr. Kline.

Mr. KLINE. Thank you, Mr. Chairman. And thank you, gentlemen, for being here today. I am going to go to my comfort zone here, I think, to talk a little bit Navy and Marine Corps, if I could.

First, let me just say that the armed forces of the United States have been transforming themselves since the very beginning. So we talk about transformation like this is something absolutely brand new. And I think you would agree that that is not the case.

We have developed new tactics, new operational concepts, new organization structures and certainly new weapons systems for over 200 years. I appreciate very much this focused effort on recognition that we do need to change and we need to change in an across-the-board, joint way.

And so I am delighted that this is working this way. And I know that when we have transformed in the past, it has been largely through lessons learned. And I want to talk about that in just a minute and how we are taking advantage of those.

But if I go back to the comfort zone I was talking about, the Navy and Marine Corps have made a change, it seems to me, as I understand the expeditionary strike groups. And I wonder, admiral, if you would just take a minute—and General Hanlon, if you would like to pile in—and kind of explain what those are, where we are in their utility and what the relationship is between ESGs and carrier battle groups and amphibious ready groups?

Where is that? That is a change.

Who wants to jump in?

Admiral COSGRIFF. I will start with the ship part of that.

Mr. KLINE. Admiral Cosgriff, you got it.

Admiral COSGRIFF. An ESG is an idea that came out of our research a few years ago that led to the larger concept of a global CONOPS, which was intended and has in fact increased the number of deployable strike packages inside the United States Navy. At heart, an ESG is an amphibious ready group with its embarked Marine expeditionary unit special operations capable, augmented by surface combatants, Aegis surface combatants with their long-range missiles, with P–3 aircraft and with submarines, a submarine envisioned for each ESG.

The first ESG is on deployment right now in the Central Command area. And we will have one deploying shortly in the Atlantic.

What an ESG allows us, the theory of it is that it allows us to use the ARG-MEU combination in areas that might be confronted with a more robust anti-access capability. But it is relative. There is an upper limit, we believe, to that amount of sea shield this force can give, versus the amount of anti-access or counterforce that they might encounter.

If you get to that threshold, then obviously you would want to bring in a carrier strike group, other joint forces—it goes without saying, other joint forces, obviously. But if you brought in a carrier strike group, you immediately form what we are calling an expeditionary strike force.

And that brings to the plate more shield, more sea shield, more air defense, undersea warfare defense, orders of magnitude, more power projection. And it also brings you the airborne sensor that helps you extend your battle space, especially in the air fight.

Mr. KLINE. Okay.

General.

General HANLON. Yes, sir. As the admiral mentioned, ESG–1 is on its way back. It is somewhere between Guam and Hawaii as we speak. I have a group of folks out there from my command on board right now, analyzing how it went. And the ESG–2 sailed this last week from Morehead City, North Carolina, heading toward the Med.

The agreement between the CNO and the commandant—and a wise one, I think—was to allow both ESG–1 and ESG–2 to go out. And they have slightly different command and control arrangements, sir.

And the idea was to let them go out. And we would do an analysis—with the Center of Naval Analysis helping us—of both ESG–1 and ESG–2 to just see if we have all the questions. You know, we do not know all the answers; we probably do not know all the questions yet, on how the ESGs will function in the future.

So what we are doing is we are going to let these two—I mean, this is all about transformation and experimentation. And this is a real world experiment we have going on right now, to see how these two operate out there together.

And I think Admiral Cosgriff would agree with me on this, we do not really know for sure exactly how the ESGs will ultimately be organized. We know what the ship mix is right now, we think.

But we have all agreed that about a year from now, when we are done with both experiments, the service chiefs will sit down and take a look at it. And we may make some adjustments, to include how it would interface with the carrier strike group, with the maritime prepositioning forces and with the joint forces at large.

I personally think we will probably see more involvement of special operation forces, for example, with the ESGs in the future. So I think this is work in progress.

I think your question is an excellent one. I think it is a question you probably ought to ask frequently to see how it is evolving.

In fact, just yesterday, I was down at Norfolk with the senior Navy command down there, talking about this very issue, making sure that we had our road map together and that we understood what metrics we were trying to capture so we could get the right answer. So that is where we are going with it, sir.

Mr. KLINE. Thank you. I know my time is out, but I just want to wrap this with a very brief follow-up. I think of this as part of transformation.

And so my question to Admiral Cebrowski is: this sort of concept, is this falling under your envelope, very much like Mr. Larsen's question about peacemaking and peacekeeping? Are you looking at this? Or is this not part of transformation as you see it?

Admiral CEBROWSKI. Absolutely. There are elements. It depends. You have the ESG piece; then you talk about seabasing; then you talk about operational maneuver from the sea; and then you talk about the larger operational maneuver balance for the nation. Okay? And these are things that build on each other.

So we just cannot talk about the lofty piece on top, as much as I would like to do that.

Mr. KLINE. Exactly. And that is my point. And thank you very much, Mr. Chairman, for your indulgence.

Mr. SAXTON. Thank you. Great question.

Mrs. Davis.

Ms. DAVIS OF CALIFORNIA. Thank you, Mr. Chairman. Can you hear me? I appreciate your all being here. I would like to just follow up on some of the other questions.

Where is the disconnect between what we are talking about and the budget, where you feel that the resources are for making a number of these changes that we are hoping for?

The other question is really one of culture. I know that, visiting some of the bases in San Diego and looking at network centric warfare and the ability of the Navy to talk to the Air Force, et cetera, obviously that collaboration is, I think—well, in the last 1.5 years, we have seen how that collaboration has come together in a way that we could not have predicted prior to that.

But we have to rely on people to make transformation successful, despite the great innovation and technology we are working with. Where can we provide more support for that? And where do you think the real challenges are in that regard?

General WAGNER. First, I would say that, first of all, I agree with what you are saying, that there is product, there is trust and there is culture. And they all have to happen.

Oftentimes, when we look for solutions, we tend to look for the technology or the things that you can buy. But oftentimes, it is more than that. It is also the doctrine; it is the leadership; it is the training and those things that go beyond just that piece of technology.

When you are looking to buy the piece of technology, it is often a question of: do we have the technology? Does it exist? Do we really know what we want? Or is it money? Different things can stall that.

I think what you have seen and what you have experienced is what we feel, is that—and this is really one of the most exciting things I have seen—is the fact that the culture has changed. And it has changed dramatically to where services now want to work their ideas in a joint environment.

And there are all the different forms, whether it is training or experimentation or whether it is the concept of command and control. We come together and we are saying, "Here is the system I have."

And it is a little bit better right now than what we currently have, but what we really want is a "born joint" solution. And that is where we get our heads together. And we are now working to develop that solution that is born joint.

So it is a two-part process there initially. One is the systems we have now, how do we work them together? But then how do we come up with a solution that is born joint and serves all of our needs together?

And at no time in my period of time have I have seen anything that mirrors where we are at now and the willingness of people to do this. And that is really exciting.

I really think that the challenges you have seen, the changes that others have mentioned, you could not have ordered those top-down and have them happen. They have to start it from the bottom up in many of the different examples that you have seen here today. And I think that is something you should be very proud of because you helped make that happen.

Goldwater-Nichols was enforced. It helped make these things happen. It takes a little bit of time. But now you are seeing the return on your investment.

And I think that that is how I would answer your question.

Ms. DAVIS OF CALIFORNIA. Admiral.

Admiral CEBROWSKI. If I may, in looking at measuring cultural change, we can access some survey work. And we have done that, to measure attitude changes. And we can see where we have done good work and where we needed to do some more.

Ms. DAVIS OF CALIFORNIA. Sir, in that regard, what surprises you the most about whether—that culture change, has it occurred more rapidly, certainly, than we have expected, but where there are still some elements that we have not quite quantified?

Admiral CEBROWSKI. Well, the great management gurus said that this would take the longest. And it looks like it is one of the things that is happening the fastest.

Part of it, of course, is accelerated, you hope, by combat, which opens up a person. Nobody learns faster than someone who is being shot at. So that opens the shutters immediately to do that. And so we are, of course, taking advantage of that.

But as I have said earlier, we are also seeing the power of leadership in this. One of the things we did is we looked at the way leaders were talking last year and the way leaders are talking this year.

Language conveys culture. And so when we see leaders using different terms, it means that there is a shift that is going on.

And some of the things that we have seen, for example, are last year, it was all about being joint to the operational level of war. This year, it is joint to the tactical level of war.

The tactical level of war has always been the service purview. And now there is openness to allowing this.

Last year, it was indivisible units. This year, it is modular units, where you can mix and match and reassemble things.

Last year, transformation was for the future. This year, the attitude is if it is a good idea for the future, let's start now.

Last year, the transformation was just for a few. It was for an elite cutting edge. This year, it is transformation affects all of us. So it is not just for an elite few.

Last year, they talked about interoperability. This year, they talk about interdependence, which is a far more—so those are the differences that we are seeing.

The tougher part of your question was the first part, which says, "Can I see this in the budget?" Okay. From a first order, you really see it in how people behave because people can use many of the same tools, be organized the same way, but behave differently. And so, this of course follows.

But the services are making tough choices. For example, you have the Navy that has decided to substitute capital for labor in order to fund their transformation effort. So they are going to divest themselves of personnel in order to be able to do that.

You see the Army has shed artillery units to get civil affairs and military intelligence capabilities. So you can see it on the ground where it is actually happening. "We are supposed to take from this and put it here." They are making those kinds of choices.

A broad strategy for that has yet to emerge. In other words, you cannot put your finger on exactly what the pattern is that is covering everybody.

But we are big and we are diverse. So perhaps it will be awhile before such a strategy emerges.

General McNABB. Ma'am, if I could? You asked how you might help. These tradeoffs, as Admiral Cebrowski outlined, are very tough to make, a lot of things on the plate.

And how do we do that? And we try to do that in the Air Force and I think in parallel with the other services and under the joint umbrella.

We are saying that first we want to talk about what effect we are trying to bring to the joint warfighter. From that, what capabilities do we need to do that require effect? And only then do we talk about the kind of investments we need to make.

And so we are trying to change that idea and to close the seams. And obviously, there are different ways of doing that capability. And what we want to do is come up with the best one from a joint perspective.

And then as we adjust and make those tradeoffs, we very much appreciate your support when we make those tough tradeoff decisions. And that includes as we try to adjust to organizations, as we talked about the Navy doing, as we are doing on our AEFs. It is the same kinds of things, as we are trying to figure out how do we better support the joint warfight?

And oftentimes, that is tough to drive through because it is different. And we find that we often get great support from the Congress. But that always seems to be a big issue.

And I think that as we go in and we think about how we are adjusting for the future, especially as we talk about QDR, is we come in and we try to cement that. One of the things that we are trying to do is say, we get to shape this about every 2 or 4 years.

But right now is a tremendous opportunity because of this looking at transformation. And we see that is the only way we can get to the future that we need to get to.

Everybody is asking us to do more. We have to recapitalize our forces in ways that we all know we have to do because we are burning up O&M because we have old equipment.

And the only way we can meet all those needs is by creating transformational effects. And again, it is the CONOPS. It is the technology. And it is the organizations.

And the integration of that is where we think the big dollars are going to be. And that is not only within the services; but that is across the services. And I think that we are trying to work together in ways that, as General Wagner mentioned, I have never seen.

Ms. DAVIS OF CALIFORNIA. LCS, for example, is that transformational for the Navy, but not transformational in the lines of other services? Or do they always work together?

Admiral COSGRIFF. Well, LCS is about gaining access in the littoral for the joint force. So I would think any service would value that access as it supports their larger contribution to the joint fight.

It also is going to be part of a joint network. It will be consistent with a lot of the trends we are seeing in the other services of getting off-board and getting unmanned.

So I think if you look at the individual programs, you will see, I believe, a broader consistency than inconsistency. To your earlier question about what you could do, I think there is an intellectual thing that you can do—and there may be money involved, but I think first it is intellectual—and that is in the nature of experimentation.

We have to be willing to fail in experiments. I do not mean failure that will cause loss of life, but failure of the intent of the experiment, where we try to do something that is truly a breakthrough and it just comes up short.

And if you do not have enough liquidity, you tend to be conservative in what you experiment with. They tend to be more like a test, in the sense that you are trying to measure an expected outcome that you have some sense is going to be achievable or within the bounds of achievability.

But experiment might be a little fuzzier, a little bit less well defined. But that is where the breakthroughs come from, I believe, over time. And we found in our own processes that encouraging people to get out there and let it hang out, try some things that are new, is where we ought to go.

So as you see it, as people talk to you about experimentation, I think that is something we would hope that you would get behind.

Mr. SAXTON. Thank you very much.

Ms. DAVIS OF CALIFORNIA. Thank you, Mr. Chairman. I think he is asking us to be patient. [Laughter.]

Mr. SAXTON. Admiral Cebrowski, I have listened carefully to each of the members' questions. And I think the questions have been good. I would just like to explore something with you though.

Isn't there a very significant difference between modernization and transformation? Let me just say what I am thinking of.

In the Air Force, we spent 12 years or so developing the C–17—we, collectively, all of us. And I would refer to it as modernization because it gives us better, but the same type of capability that we had with, say, the C–141.

In the Navy, we have an Aegis system, which is a great defensive and offensive system in some ways. But it started, it was developed—I have forgotten the exact year—someplace in the early 1980's. And it has been an evolutionary system that has gotten better and better and more modern as we have gone along.

In the Army, we have just fielded for the first time the Striker. And that is certainly a modern system that offers some speed and can bring fire, while on the move. And when the family of vehicles is completed, it will have lots of different capabilities.

And I would refer to that as modernization, not transformation. Would you agree with those three definitions?

Admiral CEBROWSKI. No, sir.

Mr. SAXTON. Okay.

Admiral CEBROWSKI. And here is why. And I am honing in on the Striker case because the Striker is not a vehicle.

The Striker is a vehicle in a network environment. And its power is derived from the tactics and behaviors and whatnot that are available to it by virtue of the fact that it is in that networked environment.

And so to look at the vehicle, you know, just by itself, you would be right. But if you look at the behavior of how it exists in the total force, it is so different.

Mr. SAXTON. Okay. So then transformation is a concept of doing things differently than we have ever done them before. And in the case of the Striker, it is because it is a network that we have never had before.

Admiral CEBROWSKI. Right. In the case of the Striker, for example, the power is coming from a different place. Instead of the power coming from the hardware, the power comes from the shared awareness by virtue of the fact that the people in the vehicle are now in the networked environment and therefore can develop tactics that they could not use before or that it was impossible for them to have.

And so you get a quantum leap in performance. And so when you match them with other people who are not operating in a networked environment, the Striker will prevail.

We have seen this in several areas. One of the classic cases, of course, is in air-to-air combat.

The Air Force has these marvelous F–15s. But you take one that is data linked or a flight that is data linked versus a flight which is not data linked, we find that almost hands down, the data linked flight prevails.

Furthermore, we have looked at that airplane, not data linked, versus a far inferior airplane that was data linked. And the data linked airplane prevails.

Why is that? It is because it can reach for tactics that the other fellow just cannot use.

And that is the phenomenon that we see happening over and over again. That is also, for example, going to be the case with the LCS.

Mr. SAXTON. Okay. Let us go back to my first two examples—Aegis and C–17.

Admiral CEBROWSKI. Aegis, of course, in its day, was extraordinarily transformational because it was doing things that we simply could not do. And if you look at the Aegis system now, well, you can upgrade it onto margins and it is not particularly exciting. We have done that before.

But on the other hand, when you put the Aegis system inside in the cooperative engagement capability network, which is a new network, then all of a sudden there are capabilities that did not exist before, by virtue of making the jump.

Would you agree with that, Kevin? Is that fair?

Admiral COSGRIFF. Absolutely.

Admiral CEBROWSKI. And so we try to make these distinctions. And I hope it does not sound like I am splitting hairs with you on this.

Mr. SAXTON. No, I am enjoying your response.

Admiral CEBROWSKI. And this can come down to very low levels. You take a Marine squad and you give them personal radios, then what they can do is no longer limited by how far they can shout or how far they can see the other members of the squad.

And so they can reach for tactics that they could not use before. And so that squad, that is a transformational jump then because the power is coming from a different place.

Mr. SAXTON. We refer to jointness as part of the transformational set of concepts that we are going to employ, right? Now to a large extent, we have always fought wars—the Marine Corps has fought alongside the Army and the Army has fought wars in conjunction with the Navy and the Navy with the Air Force, et cetera.

So the new concept of transformation, which includes jointness, means that we are going to be significantly more joint?

Admiral CEBROWSKI. Yes, but it is not just that you are more joint; you are joint in a different way. It is no longer joint from the notion of deconfliction or the notion of “I support you,” or “I am supported; you are supporting,” you know, whatever it is. Instead, it becomes an integrated, interdependent form of jointness.

And that is what we are beginning to see. And it is moving down the——

Mr. SAXTON. Give us some examples of that.

Admiral CEBROWSKI. Well——

Mr. SAXTON. Interdependence jointness.

General WAGNER. How about fire support? It is a perfect example. Typically, the Army wanted their own mortars, their own artillery, their own attack helicopters. And the Marines had the same. And the armed forces had fire support.

But in reality, you should not care who sees and identifies a target or who services it. We need a joint fire system.

Now this is entirely capable and with a precision munition. So this is an important change in joint fire.

Intelligence would be the same. It does not matter who has the ability to identify.

So what you want is your sensors servicing a collaborative, collective view of the battlefield—your sensors, your intelligence, your fire support. Now you have your whole kill chain.

So now you have changed, you have dramatically transformed how you do that from a service issue to a joint issue. And you become comfortable with not having your own mortars or your own artillery because you trust in the system to deliver the precision munitions, the best munition to service the target, without even knowing who owns it.

I think that is a great example.

Admiral CEBROWSKI. Another thing that we see going on is the Air Force, early on, became very vigorous with this concept of horizontal integration. And I think it was the horizontal integration of a sensor, so that a Rivet Joint and an AWACS and who knows what other sensor they would have could come together.

And that was on an Air Force level. Now we are pushing that to all of the services.

And the richer that network gets, the higher speed your fusion becomes. So you develop knowledge at a much faster rate. And it is shared immediately with everybody.

That is a very powerful concept. So you might look at that Rivet Joint and say, "Well, that is not particularly transformational." But once you put it in that networked environment, you have something different.

Mr. SAXTON. Okay, admiral. Let me change direction here just a bit. In your opening statement, you talked about providing for change in the services and that sometimes there might be some resistance. Yeah? Did you say something like that?

Admiral CEBROWSKI. Well, there are certainly barriers, there is no doubt about that. [Laughter.]

Mr. SAXTON. Okay, barriers. We will use your term. That is great.

Tell us what you have encouraged or instructed—whichever—in terms of each service. Tell us what kinds of changes that you are seeking to bring about in each of the services.

Admiral CEBROWSKI. I think first of all, you were right in saying that it is not direct because I do not do that. I encourage. And I believe that ideas have consequences and we share the ideas.

Mr. SAXTON. The reason I ask this question is because I am much more familiar with the changes that are taking place in the Army than I am in any of the other services. And I suspect that it is because we are trying to encourage a different set of changes in the Army—which would be natural; it is a different service—but a different set and a different dimension of change in the Army than perhaps we are in the other services.

So my question is: can you just give us an idea about the kinds of changes that you are trying to bring about in each of the services?

Admiral CEBROWSKI. First of all, the changes generally are not focused by service.

Mr. SAXTON. Okay.

Admiral CEBROWSKI. Although sometimes they are. For example, over on the Senate side yesterday at a workshop, I recommended that once the Navy starts going down the line of the LCS program that there be no pause in production because several people think, well, what we should do is we should stop this and run a few years of exercises and then maybe start the program up again.

And I argued that that would be antithetical to what the real need is and that we ought to get on with production as soon as possible. We need to reward the industry for pushing stuff out the door, preserve the design teams.

And so I would have that kind of specific advice in the Navy case for that. But that also goes up to the general level. What I am trying to do is, for everybody, is develop a high rate of learning, principally through experimentation.

I am trying to preserve the key intellectual property elements within industry, which is in our design teams. And so I am recommending strategies for acquisition that tend to preserve design teams for us and keep them well employed.

So that is a linkage between a specific service issue, in that case, and the other ones, for the Marine Corps. And frankly, these things tend to take off immediately. Once we start the discussion, it normally goes off immediately.

I encourage the Marine Corps to think beyond operational maneuver correction from seabasing to operational maneuver from the sea and that they had a good concept when they first brought it out, several years ago. Well, nobody knew how to do it. But we are starting to figure it out.

So we ought to go back to that concept robustly, make it joint and call it joint operational maneuver from the sea, which then that has impact for the Air Force because if we had the right kind of ships and we were doing operational maneuver from the sea, there is no reason that those cannot be appropriate platforms that the Air Force can then stop on.

And then I think another area that ties all that together is that the Army wants very badly—and so does the Marines—to get to the noncontiguous battlefield. And I recommend that we start with that desire, okay? And create the mobility and lift systems which will support that and then back them up all the way back to the United States.

And so that the prime metrics for whatever we use for lift and mobility are what the soldier needs at the cutting edge, at the transaction edge. And you can see how that then spirals out into the other services, the impact on the kinds of ships you buy for the Air Force, the kinds of airplanes you buy, the kind of helicopters you pursue and the like.

And so that is the approach that we use.

General McNABB. Sir, could I jump in on that, if that is okay?

Mr. SAXTON. Sure.

General McNABB. One of the things that I think—and again it gets to how not only are we working together jointly, but we have Army, Navy, Air Force warfighters, Marine warfighters. We are getting together and trying to make sure that as they are transforming, how do we support that?

So as the Army goes to the independent brigades, how do we support them as they go forward? You mentioned the C–17 for instance. Well, one of the things that the C–17 does with its throughput, it allows you to resupply and take care of a larger force that is separate from the traditional lines of communication.

So what we want to do is take advantage of whatever we have to see how do we fill in that role?

One the questions came up on how do we look to the future? And what are the niches that we might be missing?

Well, we have a futures wargame that was a Title 10 Air Force game. But 40 percent of the players were from the other services or coalition. So we had Australians. And we had folks from Great Britain.

And one of the things we played was Urban Ops. And the idea was how can we help? As the Air Force, how do we help in Urban Ops?

What can we do to help you? And it had to do with unmanned vehicles and some of the different investments that go in it.

Directed energy, as Admiral Cebrowski outlined, was a big part of that game. To say, okay, again, we are working with the Army and the Navy and the Marines. They are in the game.

How can we do this? And what are the things that we can bring to the fight that will help you as you transform?

And as we look to the future, we are in fact looking for holes. And I think the part that is very good is we are having that dialogue all the time. So as we all transform, trying to make sure that we are bringing the joint effect, we are talking to each other to make sure we fill in the blanks.

And if we talk about everybody is depending on our national enablers, what we would call our space, our ISR and our mobility in ways that they have not done before. And what we have said is about 45 percent of our investment is in those joint national enablers.

And they are constantly telling us what else they need in those enablers. Or can we change that? And I think it is paying off some big dividends for the nation.

Mr. SAXTON. Okay. Thank you. I would like to talk about the IT network in a little while. But I think I have dominated here for the last 10 or 15 minutes. So we will go have another round here.

Mr. WILSON OF SOUTH CAROLINA. Well, I certainly do not want to interfere with your domination, Mr. Chairman. [Laughter.]

But all of you again, thank you. It really has been interesting. And I was just too in the IT. And without intruding into what the chairman may be asking in a few minutes, as we think about transformation relative to different types of enemies, the different organizations for that and different tactics that come to mind, again I am very interested in accelerating the transformation of technologies.

And I, in particular—and this is for all of you—just in my service have been so impressed by the unmanned aerial vehicles and the potential that that has. The thought that I could be at Doha and see persons walking at the Basra rail yard, which was being simultaneously sent back to my nephew who was at Langley. I mean, that is just stunning and what that could mean, to protect the troops and to project our ability to protect the American people.

Additionally, I saw firsthand the improvement just in a matter of months of the gas masks from what I perceived, the ones I had that seemed just a step away from World War I, into what we have now, which again I felt really good for our troops.

Additionally, the body armor, I am particularly pleased with the Kevlar, what that means again protecting our troops and how it is hopefully universally available to our troops now who are in theater. And then of course we have armored Humvees.

And in terms of communications, I was so happy to see, admiral, your reference to each trooper had the capability of intercommunication. When I was at Fort Irwin, we used cell phones back to South Carolina to communicate with our units. And we were not supposed to, but we did. [Laughter.]

And I thought, you know, truly we can do better than this. So I want to see changes.

But for all of you: what measures need to be taken to accelerate the transition of advanced capabilities and technologies into the field and sea?

Would you like to begin, general, and move?

General McNabb. Yes, sir. One of the things that we kind of talk about trying to get this integration concept of all the parts of the puzzle, of which this integration is, in many cases, the technological revolution is just going to allow us to do things that we just never could not even imagine before.

And we talk about crosshairs over the target. It is the sum of all the wisdom.

And we put the crosshairs over the target, we do not care how it gets there. But if we have that target, we can kill it, we can save it or we can find out more about it.

The part that plays in that is command and control. It is the sensors. It is the integrated sensors that we are talking about.

It is the decision tools that allow us to do predictive battle space awareness, to say, “Hey, this is different than what it was before.” It is all of those parts—and this includes space and unmanned vehicles and airborne sensors and ground sensors—to do that single integrated operating picture that all of us can play off of.

I think about the JFACC, the joint forces air component commander, talking to the ground component commander—in this case, it was Buzz Moseley talking to General McKiernan, I believe. And what they would do is if they could see the same picture, they could talk about what they needed to do next.

That trust that builds when you can see the same picture and talk about it and say, “I am really depending on you to focus on this,” allows you to do warfare in a completely different way. And the technology is, I think, what allowed much of that to happen.

As we look at our investments in the Air Force, we have about $5 billion in command and control. That is the distributed ground control stations, it is our air operation centers and what we are going to have there so they are common configurations so that they are there for the joint warfight.

In ISR, we have about $13 billion in things like Global Hawks and all of the kinds of things that go into there, our Predator B, our automated ISR. And our com, like JTRS and so forth, we have about $7 billion.

And then if I took you to space, it exceeds $20 billion when you look at what that is going to bring to the fight. Now it is all of them together that is going to make the big difference for us.

And I was struck by your comment about one little part of that, we have the BAO kit, the battlefield air operations kits. Our ground warriors—and this is our SOF and our TACTs that are sitting with the Army and our CCT folks that are with the special operators.

Originally, they went out there. And we talked about that guy on horseback with the laser finder around his neck. He had about 150 pounds of equipment with them.

And at the beginning, I had one of the guys come in and talk to me about that today. And he said, "What we would do is. . ." And I would say, "Well, tell me how you used all this stuff."

And he would go, well, we would sit down. Just like your golf, if you play golf, you put the point out there and you say okay, what is that range and bearing? They take their map and they go, well, here is where I am based on the GPS.

So that means these coordinates are this. And so I will beam that back to the AOC and that will go up to the B–52 and so forth.

Within about 6 months, they had that all integrated so he would say here is where I am, here is where that is; so therefore, that is what these coordinates are. And they are beaming that up.

Well, it started at 150 pounds. Then they integrated that into a moving map display that they could send up to the cockpit where the folks could say, "Not only do I see the coordinate, I see the ridge line that you are talking about." And they got that down in the next phase down to 35 pounds by putting that all together in one.

Now when you talk about support for the battlefield commander, the guy that is sitting on the ground getting shot at, if we knows that he can do that very rapidly, it changes the equation. And that is what we are trying to do is figure out better ways to support the other services as they go about transforming.

And it is one of the things that, as we look at how do we open up the door for the other services and so forth, when we look at what we can do. There may be holes in where we can get sensors to, all of those kinds of things are the things that we are considering to make sure that we fill in the blanks.

And again, oftentimes tradeoffs have to be made. But we do that in conjunction with both OSD and with the other services to say, "Okay, where is the best bang for the buck?" And again, I think that goes very, very well.

Mr. WILSON OF SOUTH CAROLINA. That is terrific.

Admiral COSGRIFF. Listening to the general talk, I think I would characterize what he described and what term we use in the Navy is “warfighting wholeness.” We use the same kill chain approach. And through our analysis, we have some insights, that you may think you have it pretty well locked in until you actually go through each of the steps. And anyone who has been in the battle space knows that a hiccup in the steps and you have a problem. So we spend a lot of time making sure that we can connect all the pieces. And a large part of the connection is in the FORCEnet domain, or what we call a C4ISR, but it is FORCEnet in Navyspeak. And that a key element of that is composing a common operational tactical picture with the correct latency for the person who needs to make the decision with that picture.

So in the general’s example, at the tactical level, those latency times have to be very short and the precision very tight. But maybe at the next level up, the battle strike group level or at a brigade level, your latencies might be a little longer. You can make decisions as you abstract and compose that picture with a little bit more time and so on.

So I think as we accelerate, in your question, how could you accelerate it? It is to keep pushing the joint, keep pushing the notion of sharing information as widely as you can, make it as modern as you can, IT-based. Go in all the directions we are seeing the commercial will go in. And then keep the drumbeat going up here on the joint solutions.

Mr. WILSON OF SOUTH CAROLINA. Thank you.

General WAGNER. To me, your son has got a hard call here as to whether or not he is going to be in the information technology world or the intel world because as we look at all of our responsibilities, a lot of them come together in the command and control and communication. And the information technology enables that to happen.

But that is so critically important. And the question is: what can you do for us? Why don’t we make sure we do not take cuts in the communications technology, that part of it, as well as experimentation and the joint training.

The reality of it is, it is just something as simple as a collaborative tool. Right now we have a meeting culture. We grew up to where you go to a meeting; at that meeting, you get information.

You go back and you have another meeting. Everybody takes it on down. So you take information down the chain. You take it right down the chain. Then we bring it back up through another series of meetings.

But we have a decision cycle that lets us do that. The whole military decisionmaking process is founded on a legacy system of how information goes down. But in a collaborative environment, you have immediate real time situational awareness. You have that shared situational awareness.

You can use your precision munitions. The intel man now can use that to better use the weapons that they have.

So you have decision superiority, enabled by information technology. The collaborative tools, something as simple as that.

That is transformational. It changes your decision cycle. It changes ho long it takes. It allows you to have the accuracy that you want. There is a very clear linkage between that.

Mr. WILSON OF SOUTH CAROLINA. Thank you.

Admiral CEBROWSKI. Focusing in on the part of the question about cycle time and how we can improve, accelerate the cycle time, three things immediately spring to mind. And frankly, I think that members are well positioned to help with them.

One of them is to help us create or be tolerant of alternative business models. Many of the things we have and we produce come from a process, an approach to doing business, which is old. And we have to be willing to reach for new ones.

One of the great examples of this, of course, is in the world of space where we have been enormously successful. However, that model is old. And when we look at other nations who may be potential competitors around the world, we see they are reaching for a different model.

And so the basis for competition in space is shifting for us. And we are going to have to reach therefore for a different business model that will allow us to do things different. So that is an area that is important.

A part of that is to accept that risk has to be managed differently. For difficult programs, we have frequently managed technical risk by stretching the program out. But there are many other kinds of risk that are aggravated by time, rather than reduced by time.

And so therefore, we need alternative ways to manage this technical risk so that we can, in fact, run at a much higher RPM. And what this would involve, I believe, is creating on-ramps, instead of off-ramps. Instead of technical off-ramps, create capabilities on-ramps so that we can run at a higher RPM.

And this might look sloppy. It might look messy. It is not neat, orderly, flowing from one analysis to another and stepwise execution. But it is actually far more effective and it is what the leading firms do around the world. We ought to adopt that well.

And the third one is to be open to alternative metrics because the metrics are shifting. Going back to the LCS example, out of the QDR which was written in 1997 or so, there was a line in there that there will be 116 surface combatant ships.

So when you have that as the goal, the metric is to maximize firepower in these relatively few ships. The only way to do that is to grow the size. And so consequently, we completed the small combatant area, which has always dominated in warfare.

In actual war, we have always had just vastly more small combatant ships. So now they are not in the Navy at all. That is the result of the picking the wrong metric that can drive you out of balance.

So we are seeing some different metrics start to appear. Such things as a metric that preserves options and delays regret can be very important for us. Something that preserves design teams, loosens requirements, rather than tightens them, so that you increase the variety and the numbers.

Another metric is what is your learning rate? If you are in a slow stepwise function, your learning rate is not only slow, but it is narrow.

Transaction rates of how fast a turnover are you getting of various items? Transaction rates in business. I mean, for example, you are in business, you want to hear that cash register going all the time.

Okay, in the world of the acquisition of military capabilities, the cash register jingles about once a decade. That is the wrong metric for us. And we need to be reaching for something else.

And so we need an openness to these kinds of approaches. And if we have that—and I think your encouragement in this area would count for a lot—then we would be able to do a lot more.

Mr. WILSON OF SOUTH CAROLINA. Thank you.

General CURRAN. Sir, thank you. I would just briefly say that we do not need any help here. But your interest is important to us. And that is in this discussion of the network.

We realize that if you are going to get the joint interdependency from the infantry or the Marines on the ground to the platform in the air or in the sea, that we have to approach the network together—the same protocols, the same connectivity notions—so that it interfaces seamlessly. And we have all come to that realization.

And with Joint Forces Command, we are working those to bring our network applications and concepts and protocols so that we can get to that. And so your interest and your continued monitoring of that will be, I think, a great help to us. But we got it. And we know we have to get after it.

The second area though is—another place I would ask for your interest—is to continue to help us watch our science and technology base. Not only that within DARPA or within those that we could have some influence on, but also in academia, some of our think tanks, areas like NASA, industry.

This whole idea of transformation and moving to the future is based upon ideas. And those ideas often rest not only within our own minds and our military minds, but in the minds of a number of folks in the science and technology world who are out there dreaming up things that we see and we go, "There is a wonderful application for that."

General HANLON. Sir, for the sake of brevity, I will yield my time. Because I think anything I could add has already been said, sir.

Mr. WILSON OF SOUTH CAROLINA. Thank you all for your insight. Appreciate it very, very much.

Mr. SAXTON. Congressman Wilson has five children.

Mr. WILSON OF SOUTH CAROLINA. Four.

Mr. SAXTON. Four children. And the first thing they have to be able to do is to just tell him which service they are going to join. [Laughter.]

Mr. WILSON OF SOUTH CAROLINA. I am proud of them. I sure am. Thank you.

Mr. SAXTON. Mr. Larsen.

Mr. LARSEN. Thank you, Mr. Chairman. This question actually might be Mr. Wilson's question turned on its head. And this has to do with how much the Office of Transformation is institutionalized.

I was trying to formulate this question and finally had to draw boxes on a piece of paper to understand a little bit how to explain this.

We had a hearing a few weeks ago about the global information grid and the role that each of the services are playing in developing that and the role that plays to support the efforts and activities of the joint warfighter. We have also, in the last couple of weeks, seen a few articles appear about that the President's defense budget may be trimmed a little bit. This morning, there was some talk on the Budget Committee that even defense would not be spared.

There is talk about later this year, early next year, some amount being asked for Iraq and Afghanistan, as high as $50 billion, and some talk about whether that is enough or too much or where that money is going to come from.

So what I am getting at is it seems that as we approach this budget season, there is some pressure, even on the defense budget and in homeland security as well, to go looking for what you want to do. Dig down deep within yourself, kind of attitude, to do what you want to do.

And it seems to me that historically what then ends up falling off the table is the new stuff, the things that we are trying to get done. And it seems that you are the newest of the new stuff. The Office of Transformation is the newest of the new stuff.

My question is: how institutionalized are you? How institutionalized do you feel? How do you make the argument that the work that you are doing is really where we are headed, as the potential exists in the very near future for this debate on the budget to squeeze a lot of budgets, including the defense budget?

And Admiral Cebrowski, maybe you ought to be the first to start. I will not ask everyone to answer, but if you want to provide something, that is fine as well.

Admiral CEBROWSKI. Yeah. The issue about the durability of the office is hinged directly to the durability of the value of transformation in the eyes of the senior leaders. One cannot transform an enterprise unless the senior leader has decided that that is what is going to happen.

In this case, we have a president and a secretary of defense who have taken ownership of transformation, have declared it at the level of strategy. And so from that point of view, it is as enduring as strategy is enduring and therefore, can be refocused, can be changed.

One of the questions, however, is: are there sufficient pressures of the times, such that a person cannot walk away from transformation? And that really links to the point you make about the need for budget trimming.

We have to do things differently in order to wring out the money, to do that. When you go shopping to Circuit City, if it does not work better for less money, you do not buy it.

Why don't we do the same thing in our department? Okay? And that is an expression of transformation. You transform to be able to, in fact, do that.

So my point of view is this might be a case where the new stuff does not get cut out, but the new expensive stuff that is bought at decreasing returns on investment is the part that gets taken out. Because you can do many things to our systems which will come under the heading of modernization, where you make a system better. You do the Mark III, the Mark IV upgrade, you know, whatever it is.

Whenever you do that to a system, as those numbers get higher, normally past three, you are at decreasing returns on investment, okay? Those are the things we should pull out of the program immediately in the budget saving mode because there are decreasing returns on investment. Jump over to a curve that is increasing returns onto investment, which is going to be two things.

Now would my office stay around? Well, I suppose that if transformation itself becomes very robust and undertaken and whatnot and I can put myself out of work, I suppose I should be happy in that.

Is that likely to happen? Well, I am not so sure. So I go back to the issue of the leadership.

Now if we look for elements of transformation, we can see a lot of that being institutionalized. Laws are being passed. Policies are being written. Organizations are changed. And those things tend to endure and last quite a while.

Mr. LARSEN. So if we get to a third wave of transformation, you ought to be looking at something else? [Laughter.]

Just quickly, if I could follow up on our coalition partners and whether or not they are keeping up. And if they are not, how do we help them do that? Or how do we account for that on the ground and in the area and on the water?

Admiral CEBROWSKI. I think that General Wagner will probably have something to say on this too. It is uneven. As I travel—and actually most people come to me, rather than my traveling, but I have traveled too—I find that in several countries, we find as rich an intellectualization for network centric warfare, for movement to the information age, as we do in the United States; in some cases, better.

And some of these nations are England, Australia, Singapore, Sweden. I mean, their intellectualization is right up even with ours in this.

These nations also have the same access to high quality information technology that we do. And of course, that is spreading. Recently, the Germans have made a commitment to transform to network centric operations.

And so we can see momentum building as we go around. However, there are of course some disparities in this. And of course, there is a major effort down in Norfolk to help with that in the new naval command that maybe, general, you would like to talk to.

General WAGNER. Certainly, I will do that. With transformation, tremendous potential for this to change. And when you think back to January a year ago when we had the first of the major conferences to talk about transformation, they thought it would be difficult within one country with one political system and four militaries that are trying to work together when you have that many nations.

But then you look, in one year's time, what has happened. And it is very powerful.

Because in essence, the types of things that we are doing within our military, the other nations are trying to do the same. So they are developing their own wargame and experimentation capability, their own training center.

They are looking at a force that they can deploy, not in a traditional way, but in a transformational way, operating outside of the AOR, which they—sometimes for the first time in Afghanistan. I mean, these are truly important things.

So in each of the forces, they do not try to provide a brigade. You have a country like Hungary who is there; they said, "We cannot provide a brigade. But we have niche capabilities. And we are going to use those to transform our force."

For each of the different rotations, we will provide maybe there will be an engineer capability one time. Maybe the next time will be MP or Signal. So they will bring those capabilities to the total force. And at the same time, they have things that are beyond their requirements that they are willing to offer.

So you see tremendous partnership. In the last year, we had over 25 chiefs of the military or ministers of defense come through to talk about transformation with us alone, in our one command.

And so when Admiral Giambastiani 2 weeks ago had a meeting of the NATO command and he had over 140 generals and admirals attending, all the four-star commanders, the three-star operational commanders. The same types of discussion we are having here, but probably asking harder questions of how we are going to do it together, were being asked there.

To get back to the cost, one of the things we decided to do within our command is we are going to make our three-star headquarters joint, at no cost. And we are going to exchange Army, Navy and Air Force officers, Marine Corps officers to our three-star headquarters. At no cost, we are going to put jointness in our headquarters.

Small in numbers to begin with. So the 18th Airborne Corps, the MEP, the numbered Air Forces, they are all going to have Army, Navy and Air Force and Marines in those headquarters at no cost because we are exchanging the same skill, same grade, same capability. So we are achieving jointness in headquarters at no cost.

I think what the secretary has done is he has looked at the combatant commanders and said, "What are your requirements?" And they have looked at the lessons learned from OIF and OEF and they have prioritized these things. And those are not coming off the priority list because they see these as how you are going to achieve the future force, the effects-based force. And that is what they look at.

And so I think that they are firmly established priorities for the department and for the services.

Mr. SAXTON. Several weeks ago—are you finished?

Mr. LARSEN. Yes.

Mr. SAXTON. I am sorry. Several weeks ago, a parliamentarian by the name of Bruce George from the U.K. was here. He happens to be chairman of their defense committee in the House of Commons. And he came here and then he went to Norfolk.

And when he came back to Washington, he said, “I am really worried.” He said, “You guys are running ahead of us so fast that I do not know how we are going to be interoperable with you in the future.”

And so I share your concern. And would you like to comment on that specific case?

General WAGNER. The U.K. is an extraordinarily strong partnership, as you know. And they are very heavily in the leadership and decisionmaking process within the allied command——

Mr. SAXTON. Right. However, the chairman of their defense committee is worried about them staying compatible or equally capable with our capabilities as we move ahead and they, at least in his view, do not seem to be moving ahead that fast. Is that a problem?

General WAGNER. Well, his comment makes it a problem because he is obviously an influential person with great responsibility. But I think that would be one area where it might be worth coming back to you on for the record because that is too important to just pass off with a simple “yes” or “no.”

Mr. SAXTON. Okay. Thank you.

Mr. Kline.

Mr. KLINE. Thank you, Mr. Chairman. And again, thanks to all of you for your patience. I sometimes sit up here and we come and go to different hearings and staff comes up and pulls us out.

And yet, there you sit. It is commendable. It is downright remarkable. [Laughter.]

So thank you. Thank you very much for that.

I want to talk just for a minute about transforming the acquisition system. And admiral, you addressed that a little bit about maybe modernizing the business practices and some things. But the concern, it seems—let me put it this way.

We have systems. Let’s say it is a system that is joint to facilitate recovering downed pilots.

But if you have an old PRC–90 survival radio, you are not nearly as likely to be recovered as if you have a more modern radio, across service. And I use that as a background because when you are talking about interdependence, it seems to me that it is going to be necessary to get compatible systems, network systems, in everybody’s hands very quickly so you do not have this extraordinary difference.

I mean, a quaint example would be the Marines working out of GP medium tents in Somalia and the Air Force in air-conditioned hooches. But that you can manage.

But if you are interdependent and you actually have to communicate, it would seem to be very important that we have an acquisition system that lets us get what we need into everybody’s hands at once. And so, the question is: have you thought about how you are going to manage this?

We tend to fund over time. And we buy a system stretched out for many, many years.

It takes a long time for it to come online. And now we are going to be asking for it, in some sense, to be available to everybody at the same time. Have you given some thought to that transformation process now that might work?

Admiral CEBROWSKI. That is not a main focus area of mine. I know that might be a little bit surprising to you because of the acquisition orientation.

However, in the department, there is a multiplicity of senior managers who are invested in the very issue that you are talking about, from Assistant Secretary Stenbit to Acting Under Secretary Wynne. You have a combatant commander in Admiral Giambastiani, who has major responsibilities in this area. You have another combatant commander in Admiral Ellis, who has an interest in this area.

And so it cascades, if you will in a multiplicity of concern in this. And so yes, many people are thinking about it, even though that is not the point of main effort for me, in the way you asked the question.

Mr. KLINE. I guess, admiral, I am not reassured that many people are thinking about it. Are many people answering the question?

I mean, we are talking jointness here. We are talking about interoperability and interdependence. And at some point, whether it is the under secretary for acquisition or—I am not sure where it is in the joint staff.

And that is kind of what I am getting at here, is: are we thinking about how we are going to address this issue of funding and funding over time as we are putting this interdependence into place? And I guess I was sort of hoping there was a place where that focus was taking place.

General WAGNER. There are partnerships between Joint Forces Command and OSD, particularly in the area of joint battle management command and control. So we are not only working the road map, but also the board of directors. This is exactly the type of responsibility that we take on.

Mr. KLINE. Okay.

General WAGNER. So you look at the joint tactical radio system. And the last meeting we had was earlier this week. And we had every one of the combatant commanders, all the services, OSD, the joint staff, talking about the joint tactical radio system.

And we talked about the timelines. We talked about the waiver issues. We talked about how quickly we can bring these systems to the field.

And not just that, but the whole aspect of joint battle management command and control.

Mr. KLINE. So when you bring together an acquisition, I mean, the Marine Corps puts together its own POM and its own approach for when and how it is going to fire things. And the Army does and the Air Force and the Navy and the SOCOM.

But at some point now, because you have an interdependence, somebody is going to have to just drive that. And I assume it is in OSD. But I guess that is what I was looking for. Maybe you have given me the answer, general.

Admiral CEBROWSKI. It really is. And I expect that in the strategic planning guidance, which will be forthcoming soon, of course, there is a major effort or a major portion there on interoperability and direction with regard to that. And that is agreed upon by the OSD leadership.

General CURRAN. Sir, if I could? As I listen to your question, I think you highlighted two really issues. One is: how do I get it fast when I have identified I need it?

Mr. KLINE. Right.

General CURRAN. And then second, how do I make sure that what I get is going to work with what he gets? In other words, that we have some compatibility when it is required to have compatibility.

Mr. KLINE. Right.

General CURRAN. As it deals with PRC–90 radios, as an example, for search and rescue. That second part we are addressing through the new process by which we have to come forward to identify capability gaps that we feel that we have.

We have to bring them through a joint system which looks out to say, you know, you are looking for a replacement for the PRC–90. Well, the Air Force already has a PRC–114. So Army, that will fill your gap.

So you are going to go with the 114. That is what you are going to get.

And that drives us to this interdependence part. The second part was on the acquisition side.

How do you accelerate, when required, the acquisition process that, once you have identified from a joint perspective you need something, that you need it at a more accelerated rate? And that is the part that I think we have, at least in my lane, kind of outside my lane, for how we do that.

Mr. KLINE. It is not just speeding up the defense acquisition board process and all, not just that—identifying requirements and terminal briefs and all that sort of thing. But it is when you are ready to buy, you have made a decision to buy, how do you make sure that all of you are buying what you need upfront?

If the Marines decide to stretch out their buy—and I have been guilty of this a number of times when I was over there—if you are stretching out your buy for 12 years and the Army is doing the whole buy in the first year, then it seems to me you are going to start to have a disconnect in that interdependence piece that you are talking about. And I just was curious as to who was sort of driving that?

General MCNABB. Sir, if I could? And like the others, I am not the acquisition czar. But I would say that there is a couple of ways. One, the standards that OSD comes down with. You know, Mr. Stenbit will say, for your radios, from now on, you are going to have to be JTRS compliant.

You are going to have to have this part of it. And so everybody on the acquisition side knows as they bring new radios on, they have to meet this standard because we are trying to get to that interconnected area.

As they take any program through the defense acquisition board—chaired by Mr. Wynne right now for all but space and Mr. Teets for space—they are going to check to see are you doing all the things that you have to do to make sure that this is joint compatible. And ideally, as we drive that in, not only is the standard already there so we know we have to do that and we actually have to get waivers if we do not meet those standards. We have to go specifically, of which they have been less and less open about giving waivers because they are saying we are trying to drive this jointness in.

When you look at the acquisition, a couple of things that they are doing on the acquisition reform. And again, I am not the expert.

But I would say that part of it is having a much better dialogue with the customer, with the warfighter, to say, “I do not need to have a 100 percent solution necessarily right away” or, “I cannot get that for another 5 years.”

I may want an 80 percent solution in 2 years. And then I will spiral develop as the technology matures. I think that is the part that is really going to play a big difference.

So they will come back and have an open dialogue with the warfighter or the customer who will say, “No, I really need to wait because that does not do me much good until it has this capability.” And so it is an open dialogue that goes back and forth.

And then we will spiral as we go. And as you know, technology is changing so rapidly that, if you do not do it that way, by the time you get that 100 percent solution, it is obsolete anyway. So that is what we are trying to do, is to make sure that we do that.

On a short-term area, we have our combat mission needs statements. And I talked about the battlefield kit for the battlefield airmen sitting on the ground.

They did that through the seaman’s process where that is a very, very quick turn on the dollars that are available. And usually, you all have helped us fund that through supplementals and so forth.

We have the same thing called the warfighter rapid acquisition fund that bridges that gap, that says here is something that is so important to that warfighter or that combatant commander that he comes forward and he says, “This thing really could pay off some big dividends.”

We have the dollars that would bridge with the commitment that the next time we come in with a budget, we will fill in the tails. So there are some places where you can do very rapidly.

There are places where they are trying to speed up the overall acquisition. And I think that spiral development, from our standpoint, has got the biggest bang for the buck. And there are obviously, one of our best things is I think that they are talking to the warfighter.

And again, I think from the joint side, they are making sure that it fits into where we are trying to go from a joint warfighting standpoint.

Mr. KLINE. Great. Thanks very much. And thank you, Mr. Chairman.

Mr. SAXTON. Thank you. We are almost done. We are almost finished.

I have three questions, three sets of questions. And I will try to do this very quickly.

Some of the members of this committee went to the U.K. several weeks ago and had two very meaningful experiences. They had a lot of good, great experience, but two very meaningful experiences.

One experience was in viewing their joint intelligence organization, where they bring together their agency—we would refer to them as our agency experts: our FBI guys, some military people, some internal police people. And they literally have a facility where they sit in a room with all the big briefing screens and all this. And the agencies actually sit there and compare notes and bring together information that is pertinent to whatever they are involved in at the time.

What do you think of that? And are we moving in that direction, in your opinion?

General Wagner, how about you? Do you want to take a crack at that one?

General WAGNER. In our area, we look largely at the joint operational area. And one of the things that we advocate there and we are working very strongly with it is the Joint Interagency Coordination Group, which is part of our standing joint force headquarters.

And we feel that we are making good progress in this area. We just recently—this past week, in fact—have an ongoing exercise that has 70 different partners, interagency and multinational.

So clearly, what we see we have to do is not only take the idea that you have said—interoperation, there is also inter-training. Because this is in an area where we have not been robust enough has been in our training with the interagency.

And we are trying to work out both through the experimentation. We also think we will be able to do it with the joint national training capability.

We have to formalize the idea. And we have to embed it in our training so we can execute it into operation.

So I see the importance of that idea. We agree with that. We feel that a joint interagency coordination group is a body that brings that to our joint operational capability. And most definitely, that is a priority for us.

Mr. SAXTON. And so your answer is yes? We are doing that? Or we are moving in that direction?

General WAGNER. We see it is important. And we are moving in that direction.

Mr. SAXTON. Okay. Second experience we had, we had the opportunity to meet with their director of joint operations. Maybe you have run across him in your travels?

And after we spent two or three hours with him and we were ready to depart, I said, "Tell me, general, in your opinion, what do we do well? And what do we,"—that is the U.S. military—"not do so well? From your vantage point?"

He said, "You are great at fighting battles and wars. But you are not so good at occupation."

What do you think of that?

Nobody seems to want it. [Laughter.]

General CURRAN. Sir, if I could? Since I have spent some time in the Balkans, I have heard that before. That is an assessment that I have heard made before, primarily in the way that we have approached force protection for our soldiers in those environments and the difference in strategy between U.K. forces we have seen in the same environment and the way they approach that.

So I have heard it before. I am not sure that the jury—I think the jury is still out.

Mr. SAXTON. It would be a natural conclusion that one could draw based on our experiences over the last 40 or 50 years. I mean, we were ready to fight a big war. And we were not, at least it would appear, that maybe we were not trained to do what it is that we are doing in Iraq today.

And so we are learning, maybe, as we go.

General McNabb, this is question number two. We talked about Striker a little while ago.

And we mentioned C–17. And we learned over the last several years that it is not practical to talk about inter-theater transport of Striker in the C–130 because of constraints with weight and everything.

And therefore, if we are going to deploy rapidly a Striker brigade, we are going to have to do it in C–17s. Would you agree?

General MCNABB. Sir, I think it gives us the option of what size is the force? In other words, if you are going to put a massive force in, the C–17 gives you the throughput to do that. And obviously, given the size, it becomes much easier to deploy the whole module.

Mr. SAXTON. Yes, sir.

General MCNABB. And the Striker will fit on a 130. But how much more stuff can go on that?

Mr. SAXTON. I know. I will not tell you my story. You probably heard about it.

General MCNABB. But I think that that does get exactly to kind of your point about when might something become transformational? And again, I think the C–17, with its throughput ability, you have to get a certain amount of mass at a place. And I think that C–17 does allow that to become a much more potent force.

Mr. SAXTON. So presumably, we are going to hear, in the months and time ahead, that we are going to need more C–17s?

General MCNABB. Sir, we are in very large discussions. One of the studies that, in fact, OSD is having us take a look at to say, hey, what is the follow on? What is that real mobility need? Again, it is in conjunction with all the other transformation things that the other services are doing to see what is the best mix of aircraft to do that.

And obviously, as we think about that, that is one of the options. There is no question.

Mr. SAXTON. Okay. Thank you.

Final——

Admiral CEBROWSKI. Mr. Chairman?

Mr. SAXTON. Yes?

Admiral CEBROWSKI. Can I piggyback onto that issue for a moment? Because you focused on deployment via C–130 or C–17. The Army some time ago stated a goal of being able to deploy a brigade in 96 hours anywhere.

That is a perfectly legitimate and doable goal. And I do not think we should fall back from it. But it is a stretch goal.

Mr. SAXTON. I could not agree more with you. We just have to have the lift access to do the deal, right?

Admiral CEBROWSKI. That is exactly right. And you can reach for C–130's or C–17s or we can broaden the spectrum and consider, for example, ultra-large airlifters, which would fill that role; also, very high-speed sealift augments as well.

Mr. SAXTON. You are talking like a Navy guy. [Laughter.]

General CURRAN. Sir, as an Army guy, I will pile on to that. Fast sealift or actually the——

Mr. SAXTON. You know, that would be a transformational concept. We are looking at fast ships. But we so far have been unable to generate the enthusiasm in the Navy or the maritime community to get the resources together to even be seriously talking about it.

General WAGNER. Well, 2 weeks ago, I was down at Norfolk on one of the high-speed vessels that was actually an Army vessel that was being operated by the Navy for testing that they are doing with it, with Admiral Fallon. And he has all sorts of ideas.

On board that ship, they had everything from mine-countermine operations to UAVs for intelligence gathering and also command and control capability. So the Navy was getting it to do experimentation.

I will not speak for the Navy. But it was interesting being on this ship that was an Army ship and operated by the Navy for experimentation. So there was a full team. There were Marines on board. It was a great event.

General HANLON. Sir, I would like to give you a great example. About 2 or 3 years ago, the commander out at Okinawa, CG–3 MEF, on an island, has a problem moving his forces to places he has to train: Guam, mainland Japan and Korea. Had to depend either on available normal sealift or had to go out and hire aircraft, Air Force aircraft, to do it.

The expense of doing that was so great that sometimes it became prohibitive. So what we went out and did was we went and took out a lease on a high-speed vessel, very much like what General Wagner was just talking about. We called it the West Pack Express.

And we are now able to take an entire battalion of Marines in one lift—one lift with about 750 tons of cargo—and move literally overnight to the training areas up in Japan or to Korea or to Guam, wherever they need to train at a fraction of what it would cost if we tried to go out and hire C–17s to do it.

So the application of fast sealift in the right environment and the right place—I mean, there are sometimes you have to have C–17s. There is no question about that. But there are other cases, I think, where we need to look at high sealift.

And that is one of the reasons that we are experimenting with it right now so much because we think there is a real pony there for us, not just for the Marine Corps, but for the Army as well. And so I think it is exciting. And I think there is a lot going on, sir, in that area.

Admiral CEBROWSKI. The reason why, this is also a place where we really need to partnership across various elements of government because we are not the only ones that stand to benefit from this work. There is much in the United States transportation system that could also serve——

Mr. SAXTON. Benefit from what?

Admiral CEBROWSKI. From high-speed sealift and ultra-large airlifters, for example, unburdening the trucking industry, the ports. We do not have a port on the East Coast of the United States, for example, that takes the very large container ships. But that need not be a problem for us if we were to have the kind of high-speed sealift that the general was referring to.

Mr. SAXTON. Tom tells me that ultra-large sealift are blimps. Is that right?

Admiral COSGRIFF. They are dirigibles.

Mr. SAXTON. Dirigibles.

Admiral COSGRIFF. Well, that would be the airlift part. I feel obligated to comment, sir, that the Navy actually is quite excited about high-speed ships. And as a matter of fact, next week, my boss and others will meet with General Hanlon to talk about high-speed connectors and high-speed ships in the context of seabasing.

And I think you are going to see a lot of activity in this——

Mr. SAXTON. Can you define high-speed ship for me? How fast do they go?

Admiral COSGRIFF. Something over 35 knots, sustained.

Mr. SAXTON. Fast-ship group in Philadelphia hold any promise?

Admiral COSGRIFF. I do not have the details on that, sir. I will look into that.

Admiral CEBROWSKI. We are looking at designs that we think could run as fast as 80 to 85 knots. So there is a lot of space here, if we can get over the entry barriers.

General MCNABB. Sir, one of the things that came up when we were first envisioning the C–17, the fact that it was kind of a hybrid, both strategic and tactical airlifter, what it allowed is you to swing that airplane as you needed to, depending on where we were doing that.

And prior to Sealock closure, whether it is high speed or not, you primarily have to move stuff by air. But once Sealock closure happens, then your problem becomes more of an intra-theater and moving stuff within theater. Once you get that mass there and now you have to take it forward, much like we did in Afghanistan in support of the Marines going to Kandahar.

So it is that kind of thing that you want to make sure that the kind of aircraft you have are able to swing as you need to and again take advantage of technology where technology comes. And I think that is one of the things that we envisioned. And it is paying off.

And I think it is the same thing. If we can improve the sealift, again your intra-theater requirement may come up faster because people want to go deeper. And that may be where that may play or for a follow on.

General WAGNER. Another place where this comes together too is in experimentation wargaming because we do not just do these—like when I will look at the equipment, these things have been worked to our experimentation wargaming, looking at future scenarios, different denied access and how do they fit into it? So that is another area where this complements.

Mr. SAXTON. Thank you.

I will just move on to my last question here. Admiral Cebrowski, how are the services handling interoperability issues as you move forward with your transformation plans? And I ask that within the context of what appears to be at least three different named systems—Navy FORCEnet, Army Knowledge Enterprise and Air Force C–2 Constellation.

I am told that there are some significant differences in these systems. And I am just interested in knowing how you perceive the interoperability capabilities of the services' systems?

Admiral CEBROWSKI. There are indeed a great multiplicity of systems and efforts. However, we do have several forcing functions in place to help achieve the kind of interoperability that was referenced before. And General Wagner mentioned some of those.

We have many systems which have different letters at the end of them, denoting different services, for example. Increasingly, that focus is on a different application that might be primary, as opposed to the key interface and standards. And that is the key to this business.

That is what John Stenbit is driving very, very hard for out of ASDNII. So I believe we are going in the right direction. But it is not my confidence in the programming guidance that is doing it. That is pushing interoperability.

The pull on interoperability is interdependence. And when we find the forces in the field working interdependence issues, they are going to pull interoperability. They are going to be increasingly dissatisfied with not having to talk to their partners with whom they have established an interoperable—correction, an interdependent relationship.

So I am very hopeful about this. And I am speaking as a former J–6 who roundly failed at trying to advance to interoperability, as have my fellow J–6s. [Laughter.]

Mr. SAXTON. So you are optimistic and hopeful that we will get there with IT technology that will permit interdependence?

Admiral CEBROWSKI. By going to a standards approach first that will allow the interoperability to take place and then put on a pull on it from the ground up.

Mr. SAXTON. But we are not there yet?

Admiral CEBROWSKI. Oh, no. This is a work in progress and will be for a very long time.

Mr. SAXTON. Do you think we are headed in the right direction?

Admiral CEBROWSKI. Yes, sir.

What do you think?

General WAGNER. I think absolutely. We have done a lot of work with industry to help us get to the right place.

And what we have to do is specify the architecture. So I think we are on the same sheet. And I do feel——

Mr. SAXTON. General Wagner, what kind of mechanisms does JFCOM have to ensure interoperability among C4I?

General WAGNER. There are several things. One is the joint battle management command and control road map and the board of directors, which has specifically looked at that, and then the joint interoperability plan, which we have written and submitted to OSD, which is already driving. It is a very formal process, but it is a very collaborative process at the same time.

It does include all the services. It does acknowledge the responsibilities of STRATCOM in the areas that we are partnering with.

So it is—we try to see ourselves as the advocates of each capability and the people responsible for bringing together what the services and the combatant commanders need.

So we listen and then we build and respond to those requirements and offer it up for approval before the joint community and then to OSD.

Mr. SAXTON. You are optimistic about interoperability as well?

General WAGNER. Absolutely. There is no doubt in mind that what we are trying to do is right and our path is right. And we are going to achieve it.

Admiral COSGRIFF. Mr. Chairman, in the area of organizational alignment, recently the CNO has moved a two-star into a position in the organization of which I am a part, whose sole focus is to be externally directed in the C4I. He works personally with the Air Force.

He is on the board of directors with JFCOM. And so the signal has been heard. And it is being responded to.

Mr. SAXTON. Well, thank you. We have kept you here quite some length of period of time. And we thank you for being so patient. And we thank you for sticking with us.

And congratulations on the job you are doing. We are glad that you came to share this time with us and the information that you did.

And we look forward to working with you because what you are doing is really important. And we recognize that. And we look forward to watching the progress as we move along with you.

And I hope that you will also recognize that sometimes there are things that, because of cultural directions that are hard to change sometimes, that you may need a little extra help, as we apparently did in the Navy when some folks thought it was a good idea to have aircraft carriers and others did not. So if we can—you have to let us know when something like that happens. And we will try to be helpful. Thank you very much.

[Whereupon, at 4:12 p.m., the subcommittee was adjourned.]

APPENDIX

FEBRUARY 26, 2004

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

FEBRUARY 26, 2004

Statement of the Honorable Jim Saxton

Chairman, Subcommittee on Terrorism, Unconventional Threats and Capabilities

Department of Defense Transformation

February 26, 2004

Today, the subcommittee meets to receive testimony from our witnesses who represent the Department of Defense, Military Services, and Joint Forces Command. The subcommittee is interested in the many programs and initiatives aimed at transforming our nation's military and the Department at large.

On September 23, 1999, President Bush announced at the Citadel Military College in South Carolina that he would make military transformation a central theme if elected President. He stated that the real goal is to move beyond marginal improvements – to replace existing programs with new technologies and strategies, and use this window of opportunity to skip a generation in technology.

His election, and the events of September 11th, 2001 served as catalysts for some of the very changes that had been endorsed for several years past by both outside observers and experts within the military establishments.

Each Service has approached transformation with its own vision, and priority is being assigned to those initiatives organized to support interoperability and joint operations. Congress has an interest in transformation efforts because current choices will shape defense programs and influence budgets for years to come. A great deal of attention is being given to transformation so to understand its necessity, purpose, speed, and breadth of effort. For those watching, what are the metrics upon which one can measure transformation and how does one describe it?

While I believe that transformation is the right strategy to pursue, I would like to understand how the various service proposals are indeed transformational. Further, the subcommittee must understand how the new concepts and equipment will be funded and tested under stress conditions. These concerns are particularly important for information technology systems and survivability of new manned platforms, whether air or ground.

In short, with major changes being proposed, Congress must keep a keen eye on the process, the funding, and the experiments that will be conducted to evaluate new doctrine, equipment, and operational concepts. This is too important to take on faith. While the concepts may still be fuzzy, we are spending real money and real soldiers will risk their lives with these systems in the future.

For example, the Army's Future Combat System seems clearly transformational to me—but will the network prove too fragile, as some have alleged, and will the platform be survivable? I know these questions are important to Army leaders as well. With regard to these questions and similar questions in the efforts of the Navy, Marine Corps, and Air Force, I am gratified to know that the Department of Defense science and technology community, from DARPA to the service labs, are all working diligently on various aspects of these issues and making great progress.

And at this point, I would like to yield to the Ranking Member, my friend and partner, Marty Meehan of Massachusetts.

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COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

STATEMENT OF

ARTHUR K. CEBROWSKI

DIRECTOR OF FORCE TRANSFORMATION

OFFICE OF THE SECRETARY OF DEFENSE

BEFORE THE SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

ARMED SERVICES COMMITTEE

UNITED STATES HOUSE OF REPRESENTATIVES

February 26, 2004

STATEMENT OF THE DIRECTOR OF FORCE TRANSFORMATION
OFFICE OF THE SECRETARY OF DEFENSE
BEFORE THE SUBCOMMITTEE ON TERRORISM
UNCONVENTIONAL THREATS
AND
CAPABILITIES

ARMED SERVICES COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES
February 26, 2004

Chairman Saxton, Members of the Subcommittee,

I'm honored to have the opportunity to address the Subcommittee, and I am grateful for the opportunity to discuss a concept so vital to the nation's future – defense transformation.

Transformation is part of the new rule set for achieving and maintaining military advantage in an age of increasing complexity and accelerating change. Simply put, transformation is an imperative for the security environment of the information age and globalization. Today, when you buy a military, either you buy transformation or you buy irrelevance. Transformation broadens our options and allows us to create new opportunities while foreclosing those of potential adversaries.

We have been told how difficult transformation is. But, a funny thing happened on the way to transformation – it is happening much faster than what we expected when we announced the journey just 28 months ago. I recently traveled with Deputy Secretary Wolfowitz to the western training ranges at Ft. Irwin, Marine Corps Base 29 Palms and Nellis Air Force Base. Throughout this trip it was clear that transformation is happening. It is not just a concept and not just action in the future – transformation is happening today. It emanates from the top, but is also living and growing from the bottom up. There, in the field, I saw our "stodgy, hidebound" Army transforming before my eyes; they are hardly stodgy, they are hardly hidebound – they are vigorous and vital. It was a marvelous thing to watch as units appeared on what seemed to be a conventional battle space – only to be simultaneously immersed in conventional warfare, urban warfare, civil affairs, and a simulated local political problem. I spoke with a Company Commander who found the training so realistic he had flashbacks to his most recent experience in Iraq. Only one year ago, this capability did not exist. In just a matter of months, we see a wholesale change not in what leadership is saying, but in what soldiers can do.

Another thing we couldn't help but see is growing interoperability – jointness – down to the tactical level of war. Always a purview jealously guarded by the services, we see interoperability barriers coming down. This was clear in conversations with junior officers – they are saying things about transformation that I had always hoped for but didn't expect to hear this soon. This does not mean that we don't have a long way to go, because certainly we do. It is one thing to have the desire and to take the first steps, and it is quite another to turn it into a robust capability. However, absent these beginnings, transformation wouldn't happen.

These are examples of what we commonly refer to as transformation of the force. We also see transformation of the role of defense in national security and, indeed, in society. Homeland defense is no longer an abstraction to the average American citizen, nor is it conducted solely at long range. This has altered our view of strategic response. Responsive means *reactive* – that we have ceded initiative to an adversary and are prepared to act in the wake of an attack. The President's *National Security Strategy* recognizes that the consequences of a potential WMD attack against the U.S. mandate that we be *preventative*. This is a different approach reflecting a different role for defense in national security. If we are going to be preventative rather than just punitive, a change in intelligence is indicated. Clearly, we have to know more sooner. This calls for different organizations, different systems, and different ways of sharing intelligence. This is another transformational direction the Department is headed.

As you can see, since "transformation" is a journey, not an end point, there is no succinct way of describing a "transformed U.S. military." However, there is a strong and growing consensus about some important aspects of future forces. For example, no serious observers of, or participants in force planning argue against transforming the force. Nor do they believe we should delay efforts to do so. The debate focuses on the substance and rates of change. Similarly, there are some general, if not yet openly articulated, agreements about the kind of forces we should build. These address where we should deploy military forces, the utility of speed in deploying and using those forces, their general structure and how we should organize them, and the kind of technology they should possess. This thinking sets the parameters within which the actual character of future U.S. military forces is going to emerge. But, like the general consensus that transforming our military is a good thing to do, there is less agreement on the details of where we should go and how fast we ought to get there.

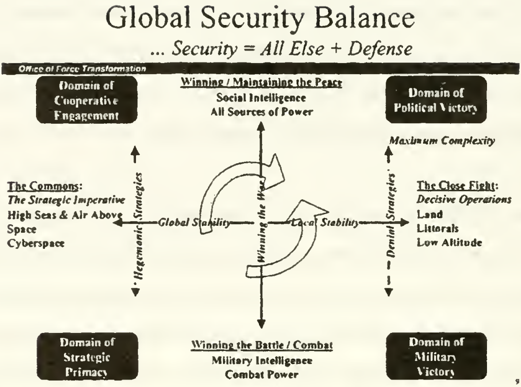
There are two ways of deciding what U.S. forces ought to be. One is inductive, an approach that looks for weaknesses, gaps, deficiencies, and problems, and determines how to correct them. This is the way Pentagon planners went about designing U.S. military forces for over half a century. Over time, however, our force planning process took on the patterns and predictability of the threat it sought to counter. In the 1950s, for example, the combined average design, development, engineering, and production time for aircraft and tanks was less than a decade. By the late 1970s it was approaching two decades. There were exceptions, but the increasing length of the cycle pattern was pronounced, and all other dimensions of the U.S. military reflected the pattern.

But, the most significant shift in our approach to planning is the rise of deductive thinking and capabilities-based planning. Capabilities-based planning is more than a new buzz term, pointing to a different way of managing planning risk. Capabilities-based planning addresses risk "horizontally." Capabilities-based planning consciously emphasizes a search for the unexpected, the deviations from the usual and the feasible, and assumes a future of increasing complexity and accelerating change. It starts with descriptions of global dynamics, in which the complexities of globalization figure prominently, and the role that United States must assume in that emerging world. We consider how a U.S. military should support that role and what balance of force capabilities would best fulfill that support. To some, this sounds very much like our approach to force structure, size, disposition, organization, and costs in the past. But, there are some important differences. Yes, we want the U.S. military to defend the United States and U.S.

interests, but the context in which we expect it to do so is likely to be dominated by a broader, more dynamic range of challenges than those we faced in the past. As our appreciation of this grows, we are discovering that our forces must be rebalanced with the emerging realities, and we are starting to understand, in detail, the change necessary for our future.

As the pace of change in the information age is accelerating, so must the institutional transactions that create capabilities from "learning." Stagnation of institutional learning comes at the expense of creating future advantage. As we perfect the comfortable and familiar "known," new knowledge enters the force glacially, and we risk becoming a strategically fixed target. If we are to take advantage of what the new age offers, we must adopt a much faster acquisition and generational cycle rate in the military. The cost of sticking to slower generational turnover—a technology cycle time that currently runs 15 to 25 years for U.S. forces—is likely to be technological surprise that works to our distinct disadvantage in future conflicts.

Are costs prohibitive in achieving capabilities the future demands? That depends on how they are met. If the cost of transformation is simply added to the costs of maintaining the legacy systems, doctrines, and processes we have carried into this century, the transformation process will go slower. But, if we pay for the new by relinquishing the old—as we should and are likely to do—it will not only go faster, but will accelerate. I believe the United States has already slipped over the tipping point in the transformation process. However, the ride is going to get much more exciting, given the emerging realities of the security environment.



One such reality is the retreat of our adversaries into complex terrain. Enemies under pressure always retreat to more complex terrain – from the high seas to land, from open land to cities and jungles, and ultimately to very complex social and political domains. This is why some fights go on interminably -- the transactions rates at the tactical level of war undergo a dramatic increase in number and complexity, and the metrics for success shift from being mass- and firepower-intensive to information- and intelligence-based. Thus, we see a change in our intelligence capabilities – the value of military intelligence is exceeded by that of social and cultural intelligence. We need the ability to look, understand, and operate deeply into the fault lines of societies where, increasingly, we find the frontiers of national security. Social and cultural intelligence allows us to do so. As a result, we acquire the ability to better identify and understand potential adversaries. This is an area where we will look for "big bets" -- high payoff technologies or concept/technology pairings that can not only alter our capabilities but alter the very character of military competition – in effect, creating a whole new game by rewriting the rules.

Another emerging reality is the potential political and military vulnerability of forward garrisoned forces. Consistent with the comprehensive global force posture review, we expect to see our forces increasingly favor operational maneuver from strategic distances and operational maneuver from the sea. Combined with the migration of conflict to complex and non-contiguous battlefields, this compels development in these essential areas – high volume, high speed lift and mobility assets to support both immediate and rapid power projection from strategic distances; a new model for sea power generation; new joint vertical lift; and, new concepts for logistical sustainment that tear down the stovepipes separating operations, intelligence and logistics. In other words, we must change what we lift, how much we lift, how we lift it, and ultimately, why we lift it.

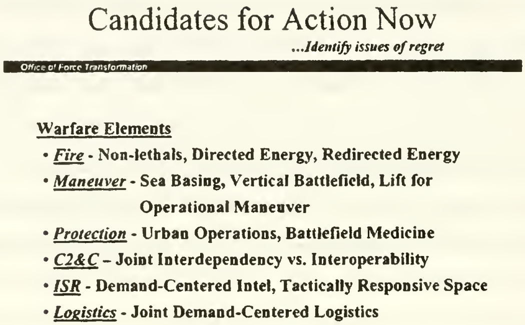
Logistics gets much attention because it is such a large fraction of any military undertaking. Logistics is very well understood because there has been so much study of it in the business world. All the business schools teach some version of logistics management. The focus is on optimization because it is so expensive. Optimization begets efficiency, which supports a better bottom line. However, one problem with current logistics models is just that – efficiency. The transparency afforded us by the information age creates predictability, optimization and efficiency. The increasing complexity and accelerating change of the security environment demands adaptivity, unpredictability, and dynamic fitness – measures of effectiveness vice efficiency. In other words, the front end of logistics is wholly incompatible with the front end of warfare – the objectives are different and the metrics are different. The magnitude of this dysfunction is becoming increasingly apparent, and transformational efforts such as "Sense and Respond" are first steps to move the Department in a new direction in logistics.

We are also likely to see a broadened approach to space. No one can compete with us in space – the way we do it. The fact of the matter is that our business model for space has been very, very good for us. We've done marvelous things and we've been enormously successful. But, over time the landscape changes. In this case, the technological context has changed making movement to an alternative business model possible and desirable. Cost per kilogram on orbit is a problem. However, *capability* per kilogram on orbit is soaring due to advances in information technology, and if we were to apply nanotechnology to space structures, the costs would likely plummet. It is time to reach for other business models. For example, the use of micro satellites makes possible alternative forms of lift into space. It also makes possible exploitation of the concept of the shared aperture or the sparse aperture where you accrue a larger capability as a consequence of networking many small things – and gain robustness in the process. These factors are not lost on potential competitors. Because we're moving into the age of the small, the fast, and the many, it is time to apply some of this thinking into our approach to space.

There are also opportunities in speed-of-light weapons -- directed-energy weapons of various kinds. Consider what happened when we put motorized vehicles on the battlefield and people no longer had to move on foot or horseback. What a profound difference that made. Then we introduced aircraft; we essentially made an order of magnitude jump from walking and riding to motorized vehicles – and made another order of magnitude jump from land vehicles to air vehicles. We increased that power further when we went to very high-speed air vehicles. Each one of these prior changes dramatically altered the character of the battle space. Today, very high-speed weapons may be traveling on the order of 5,000 feet per second (roughly mach 4.5) or even double that --10,000 feet per second. Now, consider for a moment 186,000 *miles* per second -- the speed of light -- and imagine the magnitude of change possible with speed-of-light weapons. We already have speed-of-light communications; with speed of light weapons we are examining the conceptual marriage of a communication characteristic with a weapon characteristic. This can profoundly alter future battle space. We can pursue a leadership position in this area or we can respond to someone else's advantage after the fact. The choice is ours.

Biomedical capabilities constitute another area we must pursue. Throughout the 1930s and 40s, the number of battlefield deaths from infection decreased as a result of better hygiene and antibiotics. Before that time, infection was the dominant factor in battlefield deaths. With the advent of antiseptic practices and antibiotics, the dominant factor became death from the wounds themselves. With the advent of precision warfare, we took control of that portion of the physical battle space and the total number of deaths resulting from wounds dropped. Absent substantive effort to counter new biological pathogens created by adversaries chasing asymmetric advantage, we risk losing control of the future biological battle space—not just on military battlefields but in society at large. This should be a priority for homeland security -- it is a necessary "big bet" that addresses an emerging reality.

Many of these issues are examples of what we call "issues of regret." Failure to address these will yield regret for those who follow us. A list of such issues organized according to the elements of combat are shown below.



Candidates for Action Now

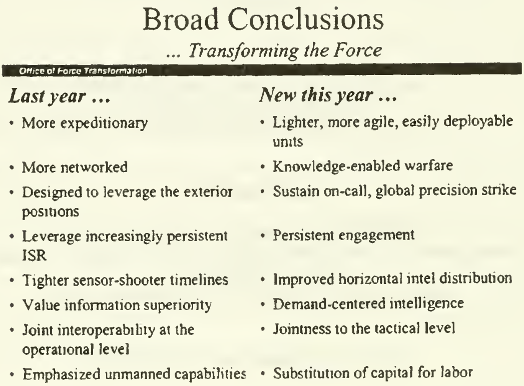
...Identify issues of regret

Office of Force Transformation

Warfare Elements

- ***Fire*** **- Non-lethals, Directed Energy, Redirected Energy**
- ***Maneuver*** **- Sea Basing, Vertical Battlefield, Lift for Operational Maneuver**
- ***Protection*** **- Urban Operations, Battlefield Medicine**
- ***C2&C*** **– Joint Interdependency vs. Interoperability**
- ***ISR*** **- Demand-Centered Intel, Tactically Responsive Space**
- ***Logistics*** **- Joint Demand-Centered Logistics**

Other indications of emerging realities reside in the service transformation roadmaps. If you were to examine these documents, as my office is tasked to do, you would see the services discounting -- the way Wall Street does -- making moves earlier in anticipation of an expected reality. You would also see subtle movements that consider the increasing international and civilian components of national security, and substitutions of capital for labor. Last year, the services highly prized independence -- this year they favor interdependence. Last year, they spoke of achieving jointness at the operational level of war -- this year they talk about jointness at the tactical level of war. Last year, they said transformation is about our future -- this year they say transformation is about creating our future today. (See table below.) These are profound changes. Yet, they are only the beginning. Transformation is a continuing process, and while we must never be satisfied, we can be optimistic about what lies ahead.

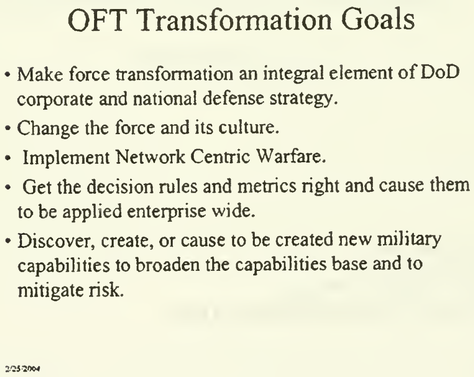


Broad Conclusions

... Transforming the Force

Office of Force Transformation

Last year ...	*New this year ...*
More expeditionary	Lighter, more agile, easily deployable units
More networked	Knowledge-enabled warfare
Designed to leverage the exterior positions	Sustain on-call, global precision strike
Leverage increasingly persistent ISR	Persistent engagement
Tighter sensor-shooter timelines	Improved horizontal intel distribution
Value information superiority	Demand-centered intelligence
Joint interoperability at the operational level	Jointness to the tactical level
Emphasized unmanned capabilities	Substitution of capital for labor



OFT Transformation Goals

- Make force transformation an integral element of DoD corporate and national defense strategy.
- Change the force and its culture.
- Implement Network Centric Warfare.
- Get the decision rules and metrics right and cause them to be applied enterprise wide.
- Discover, create, or cause to be created new military capabilities to broaden the capabilities base and to mitigate risk.

2/25/2004

RECORDED VERSION

STATEMENT BY

MAJOR GENERAL (P) JOHN M. CURRAN
DIRECTOR, FUTURES CENTER
U.S. ARMY TRAINING AND DOCTRINE COMMAND

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES
UNITED STATES HOUSE OF REPRESENTATIVES

SECOND SESSION, 108TH CONGRESS

ON DEPARTMENT OF DEFENSE TRANSFORMATION

26 FEBRUARY 2004

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COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

STATEMENT BY
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U.S. ARMY TRAINING AND DOCTRINE COMMAND

Mr. Chairman, distinguished members of the Committee, as Director, Futures Center, United States Army Training and Doctrine Command, I welcome the opportunity to testify before you as we transform an Army that is at war.

We are aggressively meeting challenges today that we will continue to face tomorrow. Rather than focusing on a single, well-defined threat or geographic region, the Army is developing a range of complementary and interdependent joint capabilities that will enable future Joint Force Commanders to dominate any adversary or situation across the full range of military operations. A capabilities-based approach to concept and force development, as articulated in the 2001 Quadrennial Defense Review, is the major focus of our transformation.

The imperative for America's Army to change rapidly has never been more compelling than today. The reasons have been and are visible, visceral and real – we've seen them on television as the events of 9/11 unfolded in nearly every workplace and home. That single event constituted a strategic inflection point. It revealed the outline of a new kind of threat and shadowy enemy that the Army would be called upon to engage in Afghanistan, Iraq and around the world. This new kind of attack broke from past practices and assumptions that were the foundation of US defense planning. The enemy did their threat assessment much as we do ours. They concluded that they would fail if they were to engage the US in a head-to-head conventional fight like Iraq did in 1990-1991 or if they tried to avoid US land power like the Former Republic of Yugoslavia did in Kosovo.

Our enemies developed new strategies focused on new techniques and operational methods. Using dysfunctional nation-states as sanctuaries, terrorists, rogue actors and non-state adversaries sought to exploit the tools of modern societies and science to attack where the US was most vulnerable – directly against our homeland and interests abroad. Pictures of attacks against the US like the USS Cole bombing and destruction of our embassies in Africa further underscored their change in tactics. Their persistent efforts to acquire and use weapons of mass destruction are a specter that we must not overlook.

Our collective responsibility in the defense of this nation is to intertwine the capabilities that all Services will bring to bear as a shield for democracy. The end-state of our work will be a joint interdependent force that maximizes Service complementary and reinforcing effects while minimizing their vulnerabilities and redundancies. Although each Service contributes its own unique capabilities to joint operations, each dominating its respective domain, joint interdependence is critical to improving Joint Force effectiveness. Joint Interdependence is achieved through the deliberate, mutual reliance of each Service on the capabilities of other Services or agencies to optimize overall effectiveness of the Joint Force. Because of this imperative, the Army has forged a solid relationship with Joint Forces Command and its sister Services. While embodying attributes of the joint force, as stated in joint doctrine, "The Army is the nation's decisive land warfare force... The Army's contribution to the Joint Force Commander is the power to exercise direct, sustained, and comprehensive control over the land, its resources, and its people."

To fully realize the contribution of Army capabilities to the joint fight, we are an active participant in the Joint Capabilities Integration and Development System (JCIDS) and the Joint Requirements Oversight Council (JROC) for articulating Army requirements. This process identifies, assesses and prioritizes "Born Joint" military capabilities. Although complex at times, this process produces capability proposals that consider the full range of doctrine, organization, training, materiel, leadership and education, personnel and facilities (DOTMLPF) solutions in order to advance joint warfighting.

To fight effectively in a new operating environment and engage a more elusive enemy, the Army must accelerate its transformation efforts. The transition from the current to the future force must happen at a pace beyond that which the institutional Army moved in the last years of the 20th century. The picture of what the Army needs to be is clear.

- The Army of the future must be **agile** to conduct simultaneous, distributed, non-linear operations.

- The Army of the future must be **lethal** to fight at multiple austere entry points.

- The Army of the future must be **networked** to self-synchronize through shared, enhanced situational awareness from global and robust Joint Command and Control and Intelligence.

- The Army of the future must be **precise** to directly attack centers of gravity that are the enemy's source of strength.

- The Army of the future must be **rapidly deployable** to have a small logistics footprint with robust reachback for required support.

- The Army of the future must be **modular** to give Regional Combatant Commanders the capability to apply decisive land power at the right place at the right time.

- The Army of the future must be **born Joint** – a member of an interdependent team -- so that the synergy of joint operations is ready to unleash the full military power of the US on unknowable battlefields around the globe.

Transforming our Nation's military capabilities while at war requires a careful balance between sustaining and enhancing the capabilities of current forces to fight wars and win peace while investing in the capabilities of future forces. We must craft new solution sets that generate technologically sound, sustainable and affordable increments to our capabilities. Joint concept development and experimentation, science and technology (S&T) investment, and future force design will enable interdependent network-enabled warfare and ensure future capabilities meet the requirements of tomorrow's Joint Force. The Joint Team will use a process of experimentation to identify solutions, capabilities gaps, all supported by a robust analytical process which incorporates innovative practices—including best commercial practices, collaborative environments, modeling simulation and electronic business solutions.

At the same time, we will take advantage of a high rate of current operations and learning to drive change in our current force. New ideas are gathered and explored to solve pressing near-term operational challenges; they are also extended to describe how future joint operational capabilities may be improved. We will look for opportunities to accelerate the fielding of proven technologies to enhance the capabilities of our current forces at war.

This continuous process forms the basis for transformation. Joint Concepts may be revolutionary, driving new technology; or evolutionary, building upon newly discovered knowledge; or innovative, applying off-the-shelf technologies to the development of future concepts. Our transformational path may seem very foreign compared to past methods of change. We must accelerate our change from the current Army now winning the Nation's wars and ensuring our security, to the Army of the future that will be even more relevant and ready. We cannot focus only on material solutions – weapon systems that were visible and measurable indices of military power and were our focus during the Cold War.

We must harness all supporting enablers to be successful on our transformational path:

- Visionary **doctrine** that describes how we will fight.
- New kinds of **organizations** that can rapidly go, fight and win anywhere.
- Innovative **training** within the Army and in joint and combined arenas that prepares each individual soldier for success.
- Comprehensive programs to grow future **leaders** who can function in ambiguous situations.
- Continued energy at accessing and retaining the right **personnel** through our recruiting process.

- Developing the right kind of **facilities** that help us train and retain the very best Army for the future.

The U.S. Army's Training and Doctrine Command (TRADOC) is the institutional center that is the launch platform of the two Army's core competencies: (1) Train and equip soldiers and grow leaders; and (2) provide relevant and ready land power capabilities to Combatant Commanders and the Department of Homeland Security as part of the Joint Team. We are the first and primary step in accessing, training and equipping soldiers and growing leaders. We determine the required capabilities for the land force which HQDA, the Joint Staff and OSD put forward for Congress to resource.

TRADOC is the primary point of entry into the Army's Future Force development. Our core competencies span the entire spectrum from creating intellectual capital in ideas to defining, experimenting and deploying fielded capabilities. Chief among our partners is the Joint Forces Command. We have built a rapport and trust that underpins a great team. The Army's Future Force will evolve to meet Joint rather than Service defined requirements, and we are the Army's agent for joint concept and capabilities development.

In 2003, for the first time the Army and the U.S. Joint Forces Command entered into a partnership and co-sponsored Unified Quest (UQ03), the Army's premiere transformational wargame which goes back many years. This now joint wargame explores not only Army concepts but also Joint and inter-Service concepts in a future force whose capabilities must be "born joint". This leap in transforming our military through application of spiral concept development also creates an environment where both U.S. Joint Forces Command and the Army's Service component, U.S. Army Training and Doctrine Command (TRADOC), will be able to examine several unique embedded experiments that are specific to each organization. Following in the footsteps of UQ03, this year's wargame, UQ04, will set a new precedent-breaking path by extending the exercise play from that of UQ 03. Game organizations will examine scenarios that involve major combat operations, stability operations, transition to post-conflict and network-centric command structure in the year 2015. We are also engaged with our sister Services in their wargames like the Navy's UNIFIED COURSE 04, the Air Force's UNIFIED ENGAGEMENT VII, and the Marine Corps' JOINT URBAN WARRIOR.

As the architect of the future, TRADOC's Futures Center is the Army's scout. We are continually assessing the future and our assessment is driven by real-time guidance and direction from policy documents like the National Security Strategy and the Strategic Planning Guidance. TRADOC's Futures Center is the nexus of Army innovation. Few organizations have a greater degree of influence on how the Army thinks, acts, trains and fights. The Futures Center at TRADOC, while relatively new, is the lead action agent to develop the Future Force. We have subsumed the mission and roles of the Objective Force Task Force and we are building on the foundation of their successes. We are also enabling soldiers in the current fight by determining capabilities gaps and integrating the spiraling of discreet Future Force capabilities that add significantly to the Current Force. Too often we think of these spirals as materiel solutions, but our efforts span the breadth of doctrine, organizations, training, materiel, leader development, personnel and facilities. This is a very challenging mission but we are uniquely postured to do the job.

At the same time, we fully recognize that we cannot do this alone. Partnering with the Department of Defense, joint community, other Services, industry, academia, our Allies and the Army family is critical to our success.

The Army, therefore, faces the supreme test of all Armies: We must rapidly adapt to a future we did not foresee and we must do this in the midst of fighting a war with forces deployed globally; a challenging mission that mandates a new transformation methodology.

Further, successful transformation requires clear direction. Many avenues of change will present themselves as we delve more deeply into these complex issues, and a clear azimuth is necessary to avoid veering off-course. To transform quickly, the Chief of Staff for the Army has sponsored several focus areas that each require exploration and immediate action. Each focus area has General Officer oversight and places special emphasis on incorporation of joint capabilities, spiral development of emerging technologies and inclusion of future force initiatives where they enhance combat effectiveness. The guiding tenets of these activities are a joint focus, modularizing the field force, building a network capability and enhancing capabilities of the individual soldier.

As we explore and prioritize opportunities, we need to assess possible solutions from a Joint and Expeditionary perspective. Our military has no peer with respect to combining technologies and tools in all dimensions of warfare. The synergies we generate give us a military advantage that overwhelms our adversaries. This is a good news story that improves with each increment of increased Joint Integration, but we can do better. We need to actively seek opportunities to leverage the capabilities of the Joint Team.

Bereft of organic strategic lift, the Army depends largely on the Air Force and the Navy for strategic deployment. The challenge is to extend such Joint Interdependence to the tactical level. The range of weapon systems and capabilities extend beyond their "dimension of origin" making it both possible and advantageous to synchronize their effects at the lowest possible level. Our enemies will attempt to protect themselves by locating in the most austere and inaccessible regions of the world. Possessing redundant and separate capabilities complicates our operations rather than enhancing mission execution. We must be able to seamlessly employ all the Joint tools at the point of contact. We cannot and should not go it alone.

The Army and the other Services have addressed the spirit of Joint Interdependence in recent joint training initiatives. The Joint Forces Command's Joint National Training Capability (JNTC) exercise trains America's Joint forces. The JNTC links Service training facilities and ranges into a real-time, around the world joint training environment effectively bridging communication gaps to apply the full range of multi-level joint capabilities into joint exercises. These exercises also bring to bear the mutual supporting relationships of the Services and explore the seams and gaps in operational settings. Never before has this type of training been executed incorporating live, virtual and constructive maneuver and support making Joint Interdependence come alive.

Effective change is continual. We will have intermediate objectives along the transformation path, but we will not reach a point where we declare that we have in fact fielded the Future Force. Rather, our forces will always represent a hybrid of capabilities. The goal is to continually strive to pull mature capabilities into the Current Force so that over time our Army more closely resembles the vision of the Future Force.

The Army is aggressively moving forward to restructure into more modular, capabilities-based forces to give the Combatant Commander a more robust array of options. The Army will continue to support operational deployments and rotations while restructuring itself. Changing the Army organization structure will be logical and account for future force concepts. To accomplish this, forces at the brigade level will restructure to enhance expeditionary and campaign qualities of the Army to better integrate into joint and coalition operations.

This new capabilities-based Army will result in a net enabled force. It will have Battle Command capabilities to leverage and enable interdependent network-centric warfare within Joint, Interagency, and Multinational full spectrum operations. Accelerating the Future Force network will enhance the Joint Command capabilities. New networked forces will leverage an infrastructure that provides for end-to-end movement of data, information and knowledge. This will provide connectivity between vertical and horizontal forces, across Joint/coalition forces and Army echelons down to the soldier. This new pathway will facilitate the Army's ability to adaptively plan within the Joint Force operating environment. Networked soldiers will have real-time and reliable information through a collaborative environment in a global information grid enabling the Joint Force to maintain information superiority. Capitalizing on actionable intelligence, networked forces will have the capabilities to filter and disseminate information that are integral to a common operational picture.

While technology and training inform us on what the future force will use to fight the next war, it is the individual soldier who is the centerpiece of our efforts and remains indispensable to the Joint team. Flexible, adaptive, and competent Soldiers infused with the Army's Warrior Culture fight wars and provide hope for world peace. An American Soldier as a Joint Warrior represents the ultimate linkage between sensor and shooter and confirms the irrefutable maxim that quality is more important than quantity. War is a test of wills and the human dimension is its most pivotal aspect. Our philosophy of equipping the Soldier as opposed to manning the equipment is enduring. When we enhance the Soldier's lethality, protection and situational awareness, we enable individual initiative at the point in which battles and wars are won.

In summary, we're taking on the biggest challenge an Army can face; transforming while at war. Our transformation path is marked by some clear signposts – experiment widely with our Joint and Service counterparts, never be content with only materiel solutions, aggressively use spiral development to get elements of the future force into the hands of the soldier on today's battlefields and ensure our innovation results in "born joint" capabilities that contribute to successful mission accomplishment at any point on the globe across the spectrum of conflict. The window of opportunity to do this is finite; we must not tire in our efforts.

It has been said many ways: Soldiers are our credentials; The Soldier is the centerpiece of our formations and the American Soldier represents the ultimate linkage between the U.S. Army and the Joint Force Combatant Commander. This is not a coincidence. The United States Army Training and Doctrine Command exists to keep the American Soldier the preeminent symbol of both American military power and values. This is more than just a paper statement or something that hangs on the wall for show, it's a level of commitment and challenge that drives us as we show up for work each day.

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STATEMENT OF

REAR ADMIRAL KEVIN J COSGRIFF, U.S. NAVY
DIRECTOR OF WARFARE INTEGRATION

BEFORE THE

TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

NAVY TRANSFORMATION

FEBRUARY 26, 2004

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HOUSE ARMED SERVICES COMMITTEE

Mr. Chairman and members of the Committee, I appreciate the opportunity to appear today. The investment you've made in America's Navy has been a prudent investment in the nation's security through the Navy's ability to project power, protection and freedom of maneuver to the far corners of the earth. Thank you for your exceptional and continuous support.

Your Navy Today

Your Navy and Marine Corps team's stellar performance in the Global War on Terrorism (GWOT), Operations ENDURING FREEDOM (OEF) and IRAQI FREEDOM (OIF) underscored the high return on your investment in our combat readiness, our people, and our unique maritime warfighting capabilities. Your return on investment included the lift for 94 percent of the nation's joint and warfighting capability and more than 7000 Naval combat sorties in support of OIF. It demonstrated the latest technology in surveillance, command and control and persistent attack operating from sovereign US territory and exploiting the vast maneuver space provided by the sea. OIF and OEF were the most joint operations in our history and they confirmed that we should continue to pursue joint capabilities that enhance power projection, defensive protection and the operational independence afforded by the sea.

Your Future Navy

OIF, OEF and GWOT demonstrated the enormous contributions Naval forces make to the effectiveness of joint and coalition forces. We expect some of the challenges faced in OIF to recur and multiply in the coming years. For example, we expect to encounter and have to overcome political and military area denial strategies. Further, military anti-access technologies, such as missiles and weapons of mass destruction, will proliferate and play a greater role than they have in the past.

Analyses of these conflicts indicate that the joint and naval transformational war fighting concepts, capabilities, and technologies and procedures we are pursuing in our Naval Power 21 and Sea Power 21 visions are on the right vector. Our goals are to:

- Achieve greater operational employability
- Strike with increased speed, variety, lethality from more formations / force packages
- Provide a defensive shield around joint forces, allies, and homeland
- Operate jointly from an independent, mobile, secure sea base
- Network fully within the Joint Force

To achieve these goals transformation must embrace more than new systems. Emerging operational concepts, processes and organizations will help transform the capability of America's 21st century naval services in a way that exploits asymmetric maritime advantages to provide unique and complimentary sea based warfighting capabilities to Joint Force Commanders.

Today I will highlight some of these operational concepts that will markedly improve the *employability* of naval forces - both those deployed and those ready to surge. I will touch on a few specific capabilities within that increasingly employable force using the capability pillars of Sea Power 21: Sea Shield, Sea Strike, Sea Base, and FORCEnet. Finally I will briefly mention the process by which the Navy develops these capabilities in a joint context.

Operational Concepts: Improving Employability

The Navy and Marine Corps met the challenges of the Cold War by sustaining a portion of our forces at peak readiness and predictably deploying as Carrier Battle Groups and Amphibious Ready Groups carrying Marine Expeditionary Units (Special Operations Capable). These were supported by the Combat Logistics Force and supplemented by the Maritime Prepositioning Force (MPF). Now we are transforming that force to meet the uncertainties of the 21^{st} century and the challenges of the Global War on Terrorism.

A great deal of work has been done on increasing the employability of Naval Forces in both geographic and temporal terms. Three new concepts allow for greater geographic distribution and more flexible packaging of naval power:

Global Concept of Operations: The Global Concept of Operations nearly doubles the number of deployable strike groups. In addition to Carrier Strike Groups (CSGs), we have increased the offensive striking power of Amphibious Ready Groups (ARGs) to form Expeditionary Strike Groups (ESGs). Joint experimentation on this concept has already begun. The first ESG deployed in August 2003.

Fleet Response Plan: The Fleet Response Plan (FRP) modifies maintenance and training practices for Carrier Strike Groups and increases the percentage of time that they are employable – whether forward deployed or ready to surge when needed. FRP modifies the maintenance/training operating cycles slightly so as to yield greater employability of our carrier forces during that cycle.

Flexible Deployment Concept: The enhanced and expanded readiness availability resulting from the Fleet Response Plan provides the President with unprecedented responsiveness. The Flexible Deployment Concept allows units that have attained high readiness to embark on deployments of varied duration in support of specific national priorities instead of solely in predictable, lock-step, 6-month deployments. This new construct allows for peacetime deployments that provide "presence with a purpose" or specific warfighting assignments, when necessary.

Transformation in Capability Terms

Sea Power 21 defines the capabilities and processes that the 21st century Navy will deliver.

Sea Shield is the projection of layered defensive power. It seeks maritime superiority to assure access, and to project defense overland.

Sea Strike is the projection of precise and persistent offensive power. It leverages persistence, precision, stealth, and new force packaging concepts to increase operational tempo and reach. It includes strikes by air, missiles, and by Marine strike forces supported by air and long-range gun fires from the sea base.

Sea Base is the projection of operational independence. It provides the Joint Force Commander the capability to retain command and control and logistics at mobile, secure locations at sea and enables Expeditionary Maneuver Warfare.

FORCEnet is the operational construct and architectural framework for naval warfare in the joint, information age. It integrates warriors, sensors, networks, command and control, platforms and weapons into a networked, distributed combat system.

Our overarching transformational operating concept is **Seabasing**; a national capability, for projecting and sustaining naval power and joint forces which assures joint access by leveraging the operational maneuver of sovereign, distributed, and networked forces operating globally from the sea. Seabasing unites our capabilities for projecting offensive power, defensive power, command and control, mobility and sustainment around the world. It will enable commanders to generate high tempo operational maneuver by making use of the sea as a means of gaining advantage.

Sea Shield

- **Assure Access for the Joint Force**
- **Project Defense Around Friends & Joint Forces at Sea & Ashore**
- **Provide a Sea-Based Layer of Homeland Defense**

Transformational *Air and Missile Defense* efforts seek to extend a defensive umbrella over land by integrating airborne, sea-based and land based sensors to engage targets from the best joint platform with the best weapon. These efforts focus on two areas:

- Initial deployment of sea-based ballistic missile defense capability, and
- Dramatically improved and integrated air and cruise missile defenses.

Key elements include E-2 Advanced Hawkeye, ARLEIGH BURKE (DDG 51) Class destroyers, TICONDEROGA (CG 47) Class cruiser modernization and Joint Strike Fighter (JSF).

Transformational *Undersea Warfare* efforts seek to develop advanced technologies to improve wide-area surveillance, detection, tracking and attack, multiplying the impact of these technologies through advanced networking to render mines and submarines increasingly less relevant as anti-access weapons. These efforts focus on rapidly finding, destroying or, where necessary, avoiding enemy submarines and mines. Key elements include Multi-Mission Aircraft (MMA), Broad Area Maritime Surveillance (BAMS) UAV, Littoral Combat Ship (LCS), VIRGINIA (SSN 774) Class submarine, and MH60R and MH60S helicopters.

Sea Strike

- **Project Dominant and Decisive Offensive Power Anywhere in the World**
- **Immediate, Agile, and Sustainable Fire & Maneuver From the Sea**

Transformational *Deliberate and Time-Sensitive Strike* and *Ship-to-Objective Maneuver* efforts leverage penetrating, netted ISR to compress decision making through joint networking to engage the enemy with the optimal weapon or maneuver force. The transformed strike capabilities of the Navy and Marine Corps will complement the improved strike capability of the Air Force, Army, and Special Operations Forces. These efforts focus on delivering joint effects from extended range with increased lethality and accuracy and on generating highly responsive fires in support of rapidly closing maneuver forces. Key elements include:

- More flexible land attack cruise missiles launched from ships and submarines (SSGN, Tactical Tomahawk);
- Electronic Radio Frequency or digital attack from manned aircraft (EA-18G), UAVs, and ships;
- Precision-guided munitions delivered by naval manned and unmanned aircraft and surface ships (DD(X), F/A-18 E/F, JSF, J-UCAS);
- Highly-maneuverable and increasingly lethal Marine forces and SEAL teams operating ashore (MV-22, LCAC and future high speed connectors, CH-53X, SSGN/ASDS).

Sea Base

- **Exploit Maneuver Space Provided by Control of the Sea**
- **Project and Sustain Responsive Forces Worldwide**
- **Minimize Vulnerabilities Tied to Bases Ashore**

Sea Base transformation is focused on developing new capabilities to support operations ashore from the sea. These involve deployment of and employment from the sea base, developing integrated logistics to better sustain the joint force, and hosting joint command and control functions afloat. These efforts seek to exploit the secure and vast maneuver space of the sea and enhance the ability to employ and sustain joint forces to minimize vulnerabilities associated with bases ashore. Key elements include the surface combatant family of ships, MPF(F), SAN ANTONIO (LPD 17) Class Amphibious Transport Dock ships, and LEWIS & CLARK (T-AKE) Class Auxiliary Cargo & Ammunition ships, and High Speed Connectors.

FORCEnet

- **Connect Sensors, Networks, Weapons, Decision Aids and Warriors from Seabed to Space**
- **Accelerate Speed and Accuracy of Decisions Across Spectrum of Command**

FORCEnet is a critical enabler of naval force transformation. It will provide a series of highly integrated distributed networks capable of providing critical operational and tactical information to specified users on a rapid and continuous basis. The "publish and subscribe" construct for moving data within the network will facilitate greatly improved shared battlespace awareness, rapid dissemination of the joint force commander's evolving campaign plan, and faster passing of information to ready forces with the right weapons for attacking key targets. The key elements are truly "born joint:" Aerial Common Sensor (ACS), J-UCAS, Joint Tactical radio System (JTRS), Deployable Joint Command and Control (DJC2) and others.

Naval Capability Development Process

The Naval Capability Development Process allows the Navy to develop "warfighting wholeness" to achieve balance among the pillars of Sea Power 21 in a manner that focuses investment across the full range of appropriation accounts.

This process incorporates strategic guidance from Strategic Planning Guidance, Transformation Planning Guidance, National Security Strategy, and Joint Operating, Functional, and Integrating Concepts. Capability development is derived from various warfighting scenarios that look across the next 15 to 20 years. Force capability metrics - "What it takes for the maritime component of the Joint force to win…" - help determine the best way to identify the capabilities that meet the metrics within available resources.

The analytical insights then focus investment not only in acquisition programs (including research and development) but also in science and technology. The Chief of Naval Research plays an important role in developing transformational capabilities that one day will contribute significantly to achieving warfighting wholeness.

Sea Trial is the Navy's process of testing emergent concepts and technologies through experimentation, leading to continuous and rapid improvements in warfighting effectiveness. An example is experimentation with high speed and theater support vessels like JOINT VENTURE and SWIFT. These helped demonstrate the value of joint sea basing and provided important lessons in hull design to feed into development of the next generation of surface combatants.

Conclusion:

America's ability to protect its homeland, assure our friends and allies, deter potential adversaries, and project decisive combat power depends on maritime superiority. The transformation of naval forces is intended to greatly expand the sovereign options of the President across the full spectrum of warfare by exploiting one of our Nation's asymmetric advantages - control of the sea at the time and place of our choosing, anywhere in the world.

Naval transformation supports joint transformation with service-unique capabilities (e.g. Seabasing). With your continued support, Naval Transformation will be accomplished through new operational concepts, new technologies, new processes and new organizational structures. These will be forged in the Naval Capability Development Process, "built joint" upon the pillars of Sea Shield, Sea Strike, Sea Base, and FORCEnet, rigorously tested via Sea Trial, and taken forward by the 21st century Sea Warrior. Thank you.

DEPARTMENT OF THE AIR FORCE

Presentation to the Committee on Armed Services

Subcommittee on Terrorism, Unconventional Threats and Capabilities

United States House of Representatives

SUBJECT: Air Force Transformation

STATEMENT OF: Lieutenant General Duncan J. McNabb
Deputy Chief of Staff for Air Force Plans and Programs

26 February 2004

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COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

Mr. Chairman and members of the committee, thank you for the opportunity to discuss with you the ongoing transformation of the United States Air Force.

To support US national security, the Services must maintain broad and sustained advantages over potential adversaries by providing joint commanders with the most effective solutions to conduct a broad spectrum of joint operations. The capabilities necessary to achieve this have, of course, changed over time, requiring the military to constantly adapt and "transform." The Air Force, like all the Services, has contributed significantly to the US military's transformation through the years. Examples of past transformational technology breakthroughs in air and space power include jet aircraft, supersonic flight, missiles, nuclear weapons, spacecraft, long-range airpower, and precision-guided munitions. Throughout its history, the Air Force has also gone through numerous significant organizational and conceptual changes to maximize the effectiveness of these new capabilities. This ongoing transformation of the US military continues today.

Scoping Transformation:

Secretary Rumsfeld's Transformation Planning Guidance defines transformation broadly as "*a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position....*" Perhaps more to the point, it adds that: "*shaping the nature of military competition ultimately means redefining standards for military success by accomplishing military missions that were previously unimaginable or impossible except at prohibitive risk and cost...Eventually such efforts will render previous ways of warfighting obsolete and change the measures of success in military operations in our favor.*"

It is important to emphasize that not all change is transformation. Transformational efforts, whether they are technologies, concepts, or organization adaptation, should result in significant improvements in warfighting capabilities or the ability to address new threats. Not all efforts achieve that.

Ultimately, transformation must be understood in a strategic context. There have been two separate, but related, transformations of the US military over the past decade that will continue for the foreseeable future. **The first is the transformation from an industrial age force to an information age force.** Vast leaps in information technology dramatically reshaping warfare in the areas of intelligence and surveillance, command and control, and precision kinetic and non-kinetic weapons. Before long, joint force commanders will be able to see the entire battlespace, identify key adversary centers of gravity, and rapidly communicate that information to friendly combat forces to wield precise, desired effects. Technology is also enabling us to produce the effects of mass without having to mass forces. This approach requires the deployment of fewer forces (and thus enhance rapid mobility), reduce the length of the conflict, and limit collateral damage.

The second ongoing transformation is that from a Cold War-posture to a Global War on Terror-posture. The military advantages America currently enjoys are in danger of eroding in the face of new, unique challenges in the 21st century security environment. In a security environment where traditional concepts of deterrence may no longer apply, the United States must prepare for new and unpredictable forms of terrorism, attacks on its space assets, information attacks on its networks, psychological operations, cruise and ballistic missile attacks on its forces and territory, unpredictable threats, reduced access to forward bases, advanced dispersal and deception techniques, and attacks by chemical, biological, radiological, nuclear, or high-explosive-armed adversaries. We must be able to conduct operations effectively across the entire spectrum of conflict , meeting the unique demands of peace operations, homeland security, urban operations, and low intensity conflicts against a broad range of potential adversaries, not just high intensity operations against a conventional foe.

Air Force Transformation Strategy:

With these considerations in mind, the Air Force is pursuing a six-part strategy. To play its part in these transformations in support of the Joint Force Commander, the Air Force is pursuing the following strategy:

- Work with the other Services, Joint Staff, and other Department of Defense (DoD) Agencies to **enhance joint warfighting**
- Continue to **aggressively pursue innovation** to lay the groundwork for transformation and **ensure that new transformational capabilities are developed and fielded as rapidly as possible**
- **Create flexible, agile organizations** that continually collaborate to facilitate transformation and institutionalize cultural change
- Shift from threat- and platform-centric planning and programming to **capabilities and effects-based planning and programming**
- Develop **"transformational" capabilities** we cannot achieve today or must be significantly improved to address the new security environment
- **Break out of industrial age business processes** and embrace information age thinking

Allow me to highlight key Air Force initiatives in each of these areas.

Enhancing Joint Warfighting

A critical part of transformation is the bring to bear the most effective force for a given situation, regardless of what Service or combination of Services contributes that force. The Services already strongly support each other in many areas and continue to enhance that cooperation. Almost half of the Air Force budget is invested in joint enablers (airlift, refueling, and air/space C4ISR) in FY 05 and that continues to increase. For example, the Air Force has recently plussed up funding for joint enablers such as the C-17, Predator and Global Hawk.

The Air Force has also been working closely with the other Services to further improve joint warfighting in various areas. Some examples:

- During Operation Iraqi Freedom, an Air Component Coordination Element team was located within each component's force headquarters to allow the air component to better integrate air and space power with the operations of the other components to more fully achieve the Joint Force Commander's objectives.
- The Air Force and Army are working to improve air support of ground forces in a number of forums: Air Force Task Force Enduring Look, Air Force Doctrine Symposium III, Center for Army Lessons Learned and Air War College Lessons Learned, Joint Combat Air Support Executive Steering Committee, the Combat Air

Support Summit, and Army-Air Force Warfighter Talks. In addition, the two Services recently held an Army-Air Force Transformation Symposium to jointly address this issue as well as enhancing cooperation in conducting future urban operations and forcible entry over strategic distances.

- During Operation Iraqi Freedom, two-thirds of Tactical Air Control Parties (the airmen embedded in Army ground units for close air support) were outfitted with standardized special operations equipment. This significantly improved their ability to enable time-critical targeting and timely close air support of ground forces.
- A Joint UCAV Program Office was stood up on 1 October 2003 to address Air Force and Navy UCAV issues. Its goal is to create standards that will allow UCAVs to be built along common lines in hopes of decreasing costs while retaining interoperability.
- All the Services are collaborating to synchronize development of a joint C4ISR network
- Air Force participation in OSD, Joint Staff, and other joint wargames explores the potential synergy of emerging joint concepts.
- The Air Force also holds regular Warfighter Talks with the Army, Navy and Marines to better coordinate our efforts to support the joint commander.
- The Air Force has established an 11-person on-site liaison office with Joint Forces Command to better coordinate joint concept development and experimentation.

Maximizing the advantages of joint operations requires a common framework that enables DoD to identify both Service interdependencies and gaps. To accomplish this, the DoD is creating new **Joint Operating Concepts** (JOCs), which will depict how the joint force of the future will fight across the spectrum of military operations. The JOCs are also intended to be specific enough to permit identification and prioritization of transformation requirements inside the defense program. The JOCs strive to build a force with specific characteristics: fully integrated, expeditionary, networked, decentralized, adaptable, decisive, and lethal.

The process of developing the JOCs and their supporting operations and integrating architectures is presently under way. Once they are completed, future Service transformation roadmaps will describe comprehensively how the Services are developing the capabilities necessary to execute them. The Air Force is developing Service operating concepts and a Master Capability List that support the new JOCs.

Working with other joint force elements, Air Force capabilities enable and accelerate joint force power projection operations in the new security environment. The mobility and swiftness, stealth, precision, and range of the Air Force, working with the dramatically enhanced capabilities of the Army, Navy, and Marines, have already paid huge dividends in recent operations.

Operation Iraqi Freedom was the first war that executed a campaign as designed by the Goldwater-Nichols Act of 1986: a truly joint warfighting effort from planning to execution. Air, ground, maritime, and space forces worked together at the same time for the same objective -- not just because they occupy the same battlespace. For example, Air Force, Navy, Marines, Army Tactical Missile System and Patriot units, coalition air forces, and space assets were all included in a combined Air Tasking Order. In addition, ground forces were able to bypass major enemy formations because, according to General Peter Pace, the Vice Chairman, Joint Chiefs of Staff, of the "trust our ground forces had in precise and timely airpower." To avoid repeating the mistakes made in Operation Anaconda in Afghanistan, the Air Force enjoyed unprecedented coordination with the land component commander to ensure air and space forces were fully integrated with the Army and Marines, as well as British troops. For instance, during the Race to Baghdad, the Marines, Army and special operations forces bet on air and space power in ways beyond any they had done in the past. These included not only indirect fires, but also persistent ISR, rapid resupply and a robust Space umbrella that provided an unprecedented level of situational awareness previously unavailable to battlefield commanders anywhere in history. The resulting trust and confidence in truly joint operations this engendered has inspired all the services to continue working to close the seams that have developed over the years.

Reducing the Acquisition Cycle:

Developing and fielding weapon systems in today's dynamic threat environment requires a new approach to Air Force acquisition. **Agile Acquisition** is changing the way the Air Force delivers capability to the warfighter through two basic improvements: it decreases acquisition cycle time and increases credibility in executing programs. The goal is to achieve effects on the battlefield with today's technology today rather than yesterday's technology tomorrow. Achieving this aim requires collaboration among all the stakeholders in the acquisition process to include the warfighter, funding, engineering, test, S&T, program management, industry, contracting, sustainment, and others.

The Air Force and DoD began this transformation with complete revisions to the directives governing acquisition. The governing principles include encouraging innovation and flexibility, permitting greater judgment in the employment of acquisition principles, focusing on outcomes vice process, and empowering program managers to use the system versus being hampered by over-regulation. Development and delivery of integrated capabilities requires the flexibility to use innovative approaches such as evolutionary acquisition where capability is delivered to the field incrementally. The warfighter gets products delivered quickly, and the acquisition team has the opportunity to infuse emerging technology into the system and deliver full capability.

Transforming to a Capabilities-Based Force:

In the past, we improved our capabilities program by program and platform by platform, focusing development efforts on making each individual system go higher, faster, farther, etc. with little consideration of how it would integrate with other capabilities in the Air Force, in other Services, or in allied militaries. We had to turn this around. Now we look at our National Strategy and determine the effects the Air Force must create. We next determine what capabilities we need. Only then do we talk about what platforms, or combination of platforms/systems, we need to provide these capabilities. It was also critical that the operators took the lead in determining capabilities and that we pursued a capabilities-based planning process wherein warfighting effects and the capabilities needed to achieve them became the drivers for everything we do.

Accordingly, the Air Force recently developed Air Force Concepts of Operations (or CONOPS). These new CONOPS focus on the effects we need to produce and the capabilities we need to maintain or develop, before we consider the platforms we need. Through these Air Force CONOPS, we:

1. Analyze problems we'll be asked to solve for the Joint Force Commander
2. Define the operational effects we expect to produce; and
3. Identify the capabilities that Air Force expeditionary forces need

The Air Force has developed six initial CONOPS: Global Mobility, Global Persistent Response, Global Strike, Homeland Security, Nuclear Response, and Space&C4ISR.

In order to precisely assess each CONOPS, our **Capabilities Review and Risk Assessment (or CRRA)** identifies and analyzes current and future capabilities, capabilities' shortfalls, health, risks, and opportunities. The CRRA is a twofold process: each CONOPS executes a CRRA within its effects and capability purview. Then, an Integrated CRRA assesses capabilities and capability shortfalls across all CONOPS. The CONOPS first identify desired warfighting effects and then develop top-level capabilities required to generate those effects. The CRRAs then identify capability gaps, overlaps, and robustness within each top-level capability. Finally, the Integrated CRRA identifies an acceptable level of risk and risk mitigation measures within each capability. This assessment helps the CONOPS Champions articulate any disconnects between required capabilities and programs.

During each CONOPS CRRA, the CONOPS Champion and Risk Assessment Teams: (1) identify their CONOPS desired effect(s) and top-level capabilities; (2) review existing and planned programs, S&T, and special access programs; (3) determine strengths, weaknesses, and opportunities; and (4) assess the impact of *not* having specific capabilities across a range of contingencies. This analysis will: (1) provide senior Air Force leaders an operational, capabilities- and risk-based focus for investment decision-making and (2) achieve the goal of using operational warfighting effects as the drivers for resource allocation for the Air Force.

Metrics to measure the Air Force's progress toward force transformation will be derived primarily from this analysis once the CONOPS and CRRA processes have been finalized and specific required capabilities determined.

Transforming Air Force Culture and Organization:

The process of transformation begins and ends with people. Only through the effective development of airmen and the seamless integration of their capabilities into Air Force operations can the Service optimize air and space power.

Allow me to quickly summarize a just a few of the Air Force's key efforts in these areas:

- The **Air and Space Expeditionary Force** construct has been critical in transforming the Air Force from a threat-based, forward-deployed force designed to fight the Cold War to a capabilities-based force based primarily in the United States that is sufficiently flexible to conduct a wide range of operations throughout the world while accommodating the high operational tempo of today's contingency environment.

- Through the new **Force Development** construct, the Air Force has a transformed vision for how it trains, educates, promotes, and assigns the Total Force in a more deliberate, coordinated, and connected approach. Transforming the Air Force is not possible without a process such as this to ensure Airmen understand the nature of the changing security environment. Recognizing this, we are restructuring our officer Professional Military Education programs. For instance, we are expanding the opportunities for in-residence attendance and specifically tailoring the education experience to the officer's development path. This will include more opportunities for select individuals to pursue relevant advanced technical degrees at civilian institutions. We've also begun providing the opportunity for our enlisted force to obtain advanced degrees from our highly acclaimed Air Force Institute of Technology (AFIT). We're also revamping our personnel assignment system to better develop our future leaders through a purposeful pairing of primary and complementary assignments and experiences. Future plans will expand the Force Development construct to include our reserve components, enlisted corps and civilian workforces.

- Through the **Future Total Force (or FTF)** effort, the Air Force is continuing its transformation in the way it integrates the Air National Guard, Air Force Reserve, and civilian force to produce greater combat capability more efficiently. As the Service relies more on Guard and Reserve components to provide critical peacetime and wartime capabilities, it makes sense to allow some units the opportunity to live, work, and train together. FTF would allow each component to contribute its unique strengths to provide the capability, experience, stability, and continuity required to operate today's information- and technology-driven forces. It would also enable the Air Force to make better use of basing infrastructure and maximize the utilization of expensive weapon systems.

  One way to implement this is to expand the integration of Active and Reserve component units. Moving Guard and Reserve units with like assets to active bases or vice-versa could facilitate leaner, more efficient operations, maintenance, and infrastructure. The Air Force has already established units using this concept. Examples are the merger of the Air National Guard's 116th Bomb Wing and Air Combat Command's 93rd Air Control Wing to form the 116th Air Control Wing (a Joint Surveillance Target Attack Radar System Blended Wing) at Robins Air Force Base, Georgia; and the integration of Air Force Reserve Command's 8th Space Warning Squadron associated with Air Force Space Command's 2nd Space Warning Squadron at Buckley Air Force Base, Colorado. Reserve Associate and Active Associate units have proven that this concept works and benefits the Active and Reserve Units. Indeed, they have been used for the last 35 years. There are currently a total of 11,000 Air Force reservists assigned to associate units, including 32 Reserve Associate flying units. The movement of the 126th Air Refueling Wing from Chicago to Scott Air Force Base, Illinois represents another example of the efficient use of available infrastructure by different components.

Developing Transformational Capabilities:

The Air Force is also pursuing new "transformational" capabilities it cannot achieve today or must be significantly improved to enable DoD's transformation goals and the new AF concepts of operation. These capabilities and associated unclassified Air Force efforts are described in detail in the *Air Force Transformation Flight Plan*. However, I will briefly provide a short overview here.

The Air Force of today is facing numerous challenges to achieve the necessary capabilities to prevail in the future. Networking of air, space, and ground systems is limited. The amount and type of ISR assets needed for time-critical and simultaneous targeting in most cases are limited. Legacy air capabilities are vulnerable to the next generation of advanced air defense systems. Rapidly striking anywhere on the globe and conducting persistent operations is very difficult. Often, the only effect we can produce on a target is to destroy it with kinetic weapons, which is not appropriate in all situations. Critical information and space systems are vulnerable to attack. The United States has a limited capability to affect adversary command and control and intelligence-gathering abilities and deny space to adversaries if necessary. In most cases, forces cannot be deployed abroad in a timely manner. American territory and forces are also highly vulnerable to ballistic and cruise missile attacks. The threat from the continued proliferation of chemical, biological, radiological, and nuclear weapons creates a continuous need to ensure that US forces can survive, fight, and win in a contaminated environment.

We have already made great strides in reducing the kill chain and putting the cross hairs over the target in minutes, rather than hours, and much more precisely. For instance, we beamed coordinates to a B-1 and 12 minutes later, it put four JDAMs on a restaurant when we though Saddam Hussein was inside. However, it took 45 minutes from the time we thought we saw him go in to when we got authorization from our chain of command to strike. If we could make the entire process take only 30 minutes, rather than 57, the effect might have been completely different.

To overcome these shortcomings, the Air Force is pursuing the following sixteen "transformational" capabilities – capabilities that must be significantly improved to enable the new CONOPs and DoD's transformation goals. The first five combined would help enable the United States to achieve information superiority:

- Seamless joint machine-to-machine integration of all manned, unmanned, and space systems.
- Real-time picture of the battlespace
- Predictive Battlespace Awareness, which is a commander-driven process to predict and preempt adversary actions when and where we choose
- Ensured use of the information domain via effective information assurance and information operations
- Denial of effective C4ISR to adversaries via effective information operations

There are numerous ongoing efforts that will combine to achieve these capabilities. The larger ongoing Air Force programs include Advanced Extremely High Frequency, Automated ISR, the Combat Information Transport System, the Distributed Common Ground System, Global Positioning System Blocks IIF and III, Joint Tactical Radio System, Link 16, and the Transformational Satellite.

Additional transformational capabilities the Air Force are pursuing include:

- Penetration of new, advanced enemy air defenses to clear the path for follow-on joint forces (with stealthy platforms such as the F/A-22, UCAVs, and information operations)
- Effective and persistent air, space, and information operations beyond the range of enemy air defenses under adverse weather conditions (with advanced standoff weapons)
- Protection of vital space assets
- Denial of an adversary's access to space services
- Detection of ballistic and cruise missile launches and destruction of those missiles in flight (with new missile defense systems)
- Rapid establishment of air operations, an air-bridge, and movement of military capability in support of operations anywhere in the world under any conditions with advanced rapid global mobility assets.

- Responsive launch and operation of new space vehicles and refueling/repair/relocation of existing vehicles
- Significantly lighter, leaner, and faster combat support to enable responsive, persistent, and effective combat operations under any conditions
- Order of magnitude increase in number of targets we can hit per sortie (with the new Small Diameter Bomb)
- Achievement of specific, tailored effects on a target short of total destruction (with non-lethal and directed energy weapons and information operations)
- Rapid and precise attack of any target on the globe with persistent effects with both information operations as well as the Common Aero Vehicle and future long-range strike assets.

These capabilities will not only revolutionize traditional high intensity combat operations, but will also enable the United States to face new non-conventional threats and the future security environment. For example these capabilities will help the United States:

- Counter various anti-access strategies by adversaries.
- Protect critical C4ISR systems and networks against adversary attacks and counter adversary PSYOP campaigns.
- Protect critical space assets against growing adversary threats to them.
- Counter advanced dispersal and deception techniques and enable tracking of targets under the cover of night and in adverse weather.
- Greatly enhance the conduct of future urban operations and the ongoing global war on terrorism.
- Protect US forces from new technologies available to adversaries and defend the US homeland.
- Enable US forces to conduct responsive, persistent, and effective combat operations under any conditions, to include CBRNE environments.
- Significantly mitigate the unpredictability of threats in the new security environment and the greatly reduced access to forward bases.

Transforming How the Air Force Does Business:

In addition to force transformation, the Air Force is also beginning to engage in business transformation. Air Force business processes stem from an industrial age when America faced a security environment that was vastly different in character from the one the Air Force faces today. Although they have been incrementally reformed and modernized over the last 30 years, the underlying philosophy and basic architecture of these processes has not changed—they are labor intensive, they lack agility, flexibility, and speed. Accountability is fragmented and diluted throughout large bureaucracies that must render their collective assent to enable the accomplishment of the most mundane tasks.

The Air Force seeks—relative to the status quo:

- A significant shift in business operations resources (dollars and people) to combat operations and new/modern combat systems
- Work processes and a work load enabling its people to accomplish routine (non-crisis, non-exercise) organizational missions within a 40 to 50 hour work week
- A compression of average process cycle time by a factor of four (relative to current established process baselines)

- An improvement in the effectiveness of operations resulting in higher customer satisfaction ratings
- Empowerment of personnel and enrichment of job functions

The Air Force has recently created several organizations, processes, and programs to begin the task of achieving these goals. They include the Business Management Modernization Program, Air Force Business Modernization and Systems Integration Office, Air Force Business Management Modernization Program, Business Transformation Investment Process, and the Balanced Scorecard.

Conclusion:

In conclusion, I would simply like to highlight that this is an exciting time for the Air Force. It is engaged in developing new strategies and new concepts of operation to meet an entirely different set of challenges and vulnerabilities. Technology is creating dynamic advances in information systems, communications, and weapon systems, enabling the joint commander to understand the enemy, deploy forces, and deliver more precise effects faster than ever before. Airmen are more educated, more motivated, and better trained and equipped than any time in the past.

The Air Force is fully committed to the transformation process and to maximizing joint combat capabilities. It is using the Secretary of Defense's construct, primarily described in the Transformation Planning Guidance, to guide its transformation efforts. The *U.S. Air Force Transformation Flight Plan* lays out the Service's ongoing transformation efforts in detail, which, in concert with the other Services, will help achieve the effects required by the Joint Force Commander in the changing security environment.

In addition to developing transformational capabilities, the Air Force has robust strategic planning, innovation, and long-term S&T processes in place to support the development of these capabilities. It is creating flexible, agile organizations to facilitate transformation and institutionalize cultural change. The Air Force is transforming the way it educates, trains, and offers experience to its airmen so they understand the nature of the changing security environment and are encouraged to think "outside the box." It is continuing the transformation of how it integrates the Air National Guard, Air Force Reserve, and civilian force with its Active Duty force. The Air Force is continuing to transform into a capabilities-based force through the new CONOPS and the CRRA. It is working with the Joint Staff, OSD, and the other Services and Agencies to improve joint warfighting and develop the new Joint Operating Concepts.

Transformation, however, should not be achieved at the expense of conducting current vital operations in support of the DoD Defense Strategy, maintaining adequate readiness and infrastructure, conducting critical recapitalization, and attracting and retaining quality personnel. There must be a careful balance between these requirements and our investment in transformation. We must fight the war today and prepare for the one tomorrow. We believe our program achieves the proper balance.

The Air Force will always excel at providing air and space focused capabilities to the joint warfighter, while enhancing the capabilities of soldiers, sailors, and marines. The diversity and flexibility of Air Force efforts and capabilities through concepts of operation, technology, and organizational structure provide unparalleled value to the Nation and make the whole team better. The Air Force will continue to work with the rest of DoD to keep transformation focused to provide the capabilities required for the Nation in the 21st Century.

Thank you, Mr. Chairman.

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TERRORISM, UNCONVENTIONAL
THREATS AND CAPABILITIES
SUBCOMMITTEE OF THE HOUSE
ARMED SERVICES COMMITTEE

STATEMENT OF

LIEUTENANT GENERAL EDWARD HANLON JR.

DEPUTY COMMANDANT COMBAT DEVELOPMENT

UNITED STATES MARINE CORPS

BEFORE THE

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL

THREATS AND CAPABILITIES

OF THE

HOUSE ARMED SERVICES COMMITTEE

CONCERNING

TRANSFORMATION

ON

FEBRUARY 26, 2004

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Introduction

Chairman Saxton, distinguished members of the Committee, it is my honor to report on the transformation efforts of your Marine Corps. The Marine Corps remains committed to warfighting excellence, both today and in the future, and the support of the Congress and the American people has been indispensable to our success on the battlefields of the world and in the Global War on Terrorism. This Subcommittee's interest in the future concepts and capabilities of your Corps and your support of our endeavors is vital to the security of our Nation. I thank you for your continued support and commitment to the development of your Marine Corps.

Our Mission and History of Innovation

Marines are both expeditionary and innovative by nature, with a centuries-old tradition of anticipating, adapting, and preparing for new circumstances. We are transformational by design. Our heritage of doctrinal and system development in close air support, amphibious warfare, vertical envelopment, and maritime prepositioning has contributed much to joint warfighting over the past century. The overall mission of the Marine Corps has similarly evolved throughout the years, from a naval constabulary to an amphibious force, to today's expeditionary force-in-readiness. Sea-based, combat-ready Marine and Navy combined arms forces have played a vital role in shaping global and regional security environments, assuring access to overseas regions, and facilitating timely crisis response - anytime, anywhere, from the sea.

Our successes over the past few years has both reaffirmed our tradition of flexibility and innovation and provided valuable lessons for our future force development. In Operation Enduring Freedom, sea-based Marines projected power hundreds of miles inland to establish a stronghold deep in enemy territory. During Operation Iraqi Freedom, more than 66,000 Marines (including Reservists), their equipment, and supplies deployed to the Iraqi theater using a combination of expeditionary amphibious warships comprising two Amphibious Task Forces, two Maritime Prepositioning Squadrons (MPS), and strategic military and chartered commercial airlift. Once combat commenced, a Marine Corps combined-arms team advanced more than 450 miles from the sea to Baghdad and beyond. Your Marine Corps went farther, faster than in any time in its history, and achieved successes in every battle. The lessons from those continuing endeavors are still being collected, analyzed, and incorporated into our future concepts and capabilities. As one example, we are bringing our Air Naval Gunfire Liaison Companies (ANGLICO) back to the active Marine Corps from the Reserve component in order to further integrate with joint fires capabilities.

Marine Corps Transformation

Our force development begins with and is guided by concepts that describe our future naval force. Enhanced naval capabilities are based on naval concepts that describe how the Navy - Marine Corps Team will operate as an integrated naval force from now through 2020 in a joint and multinational environment. Transformation is not simply the military application of technology. Transformation is instead a continuous process built around new operational concepts, organizational agility, revolutionary technologies, and wide-ranging business and acquisition reform.

Transformation must then produce either the ability to do something previously unachievable or the ability to perform a function exponentially better than before. Each product of the Marine Corps' continued transformation will result from a synthesis of activities across concepts, organizations, technology, and business reform to achieve one or the other of these objectives. We finally achieve the capabilities that support our concepts through investment, Science & Technology, Research & Development, experimentation and wargames, and training and education.

The Marine Corps' transformation is inherently linked with that of our sister Service, the United States Navy. Indeed, the integration of Navy and Marine Corps concepts, organizations, and technologies is a prime example of our continuing transformation, and serves as a model for future joint force development. The Navy - Marine Corps Team's transformation encompasses and integrates powerful extensions to current joint capabilities, as well as a range of innovative new capabilities.

Operational Concepts

Seabasing, Operational Maneuver From The Sea (OMFTS), and Ship-To-Objective-Maneuver (STOM) are the central concepts in our transformational efforts.

Seabasing is the overarching expression of our Navy-Marine Corps vision, incorporating the initiatives that will allow the joint force to fully exploit one of this nation's asymmetric advantages - maritime dominance of the sea. Seabasing, a national capability, is our overarching transformational operating concept for projecting and sustaining naval power and joint forces which assures joint access by leveraging the operational maneuver of sovereign, distributed, and networked forces operating globally from the sea. Seabasing unites our capabilities for projecting offensive power, defensive power, command and control, mobility and sustainment around the world. It will enable commanders to generate high tempo operational maneuver by making use of the sea as maneuver space in order to gain advantage over our adversaries.

The Operational Maneuver From The Sea (OMFTS) concept seeks to fully exploit the naval character of Marine Corps forces—their ability to move by sea, deploy at sea near the scene of a crisis, project power ashore and sustain themselves from the sea, and redeploy to the sea. What distinguishes operational maneuver from the sea is the use of the sea as a means of gaining operational advantage, as an avenue for friendly movement that is simultaneously a barrier to the enemy, and as a means of avoiding disadvantageous engagements.

The Ship-to-Objective Maneuver (STOM) concept is a transformational tactical application of enduring naval capabilities for Operational Maneuver from the Sea (OMFTS) and exploits each of the enhanced capabilities described by Expeditionary Maneuver Warfare (EMW). Enabled by persistent, responsive, and dynamic sea bases forward deployed in international waters, naval forces executing STOM will be able to project Marine Air-Ground Task Forces (MAGTFs) directly to critical operational objectives located deep inland, dislocating our adversaries both in space and in time. STOM includes combined arms penetration and exploitation operations from over the horizon by both air and surface means, with forces moving rapidly to operational objectives without stopping to seize, defend, and build up beachheads or landing zones. STOM provides the Navy - Marine Corps Team with an enhanced, sea-based forcible entry capability optimized for the introduction of follow-on Air Force, Army and multinational forces.

Operational Concepts - Seabasing

The inherent mobility, security, and flexibility of naval forces provide an effective counter to emerging military and political limitations to overseas access. Seabasing provides the dynamic access, speed of response, flexibility, and persistent sustainment capabilities necessary to execute combat operations ashore, allowing us to initiate maneuver in the seaspace to enable and conduct joint operations ashore at a time and place of our choosing.

Seabasing is not new to the Navy - Marine Corps Team; we have projected power from the sea for many decades. However, the new transformational capabilities that we seek in Seabasing will allow us to conduct the initial Reception, Staging, Onward movement, and Integration of our combat forces at sea, rather than in a permissive shore location. Critical to our Seabasing concept is the Maritime

Prepositioning Force of the Future which will provide the capabilities of At Sea Arrival and Assembly, Selective Offload, and Reconstitution at Sea. But, we must also continue to retain the advantage in joint forcible entry operations provided by our amphibious assault ships, such as will be provided by the LPD-17 and LHA(R).

As we face an uncertain future characterized by unreliable access to host nation or allied support and increasingly sophisticated anti-access and area denial technologies, we believe that Seabasing will exist not only as another operational capability, but as the preferred means of deploying, employing, and sustaining joint forces in distant anti-access environments throughout the globe.

Operational Concepts - Ship-To-Objective Maneuver

Marine forces, operating from the sea base, would conduct Ship-To-Objective Maneuver (STOM) directly against objectives ashore while leaving the majority of logistics, command and control, and much of the fires at the sea base in international waters. STOM is one of the fundamental requirements for naval forces. Everything we do in the Navy and Marine Corps is intended to have an effect on the enemy, whether it is deterring him or defeating him. Naval forces of the future will use the sea as a maneuver space in order to project Marine Air Ground Task Forces deep inland, attacking key operational objectives without stopping to establish command, logistics, or fires support bases first.

Ship-To-Objective Maneuver is a concept for integrated naval forcible entry, combining both air and surface assaults directly against operational objectives deep inland. The most significant change is that we will no longer establish fixed and vulnerable command, logistics, and fire support bases ashore before attacking key objectives. Instead, we will move seamlessly ashore, moving faster than the enemy can react. Key components of this concept include the ability to move assault echelons of credible size and combat power across a distance of over a hundred miles inland from a sea base. We will need capable high-speed connectors such as a heavy-lift Landing Craft Air Cushion, vertical lift assets like the MV-22 Osprey and CH-53X heavy lift helicopter, and the amphibious assault capabilities provided by our Expeditionary Fighting Vehicle (EFV).

Seabasing Capabilities

Seabasing is not a single thing, unit, or platform. It is the flexible integration of a wide range of capabilities that provides freedom of movement by using the sea as maneuver space; freedom of action in anti-access environments; reduced vulnerability to attack; and increased operational agility and speed. A series of Navy - Marine Corps capabilities to operationalize Seabasing are being developed through four interdependent and synergistic Naval Capability Pillars (NCPs):

- **Sea Shield** describes the precise and persistent naval defensive capabilities that extend not only throughout large maritime areas, but also deep overland to protect joint forces and allies ashore in anti-access environments. Sea Shield Mission Capability Areas include Personnel Protection, Critical Asset Protection, Air and Missile Defense, and Combating Weapons of Mass Destruction. We are pursuing such programs as the Complementary Low Altitude Weapon System and the Multi-Role Radar System. Another key element of Sea Shield is Force Protection, and the Marine Corps, as the lead agent for Joint Non-Lethal Weapons, is actively seeking new and innovative ways to expand the ground commanders force protection capabilities. We must capitalize on Seabasing as a means of protecting joint forces across the range of military operations (ROMO). This can be viewed as a protection "network" addressing the Force Protection functions of detect, assess, warn, prevent/deter, defend, and recover.

Sea Strike describes the naval capabilities to project dominant and decisive offensive power from the sea in support of joint objectives. These capabilities include and integrate long-range, precise aircraft and missile fires; large-volume covert strike capability; high-tempo decisive maneuver by Marine Air Ground Task Forces; Naval Surface Fire Support (NSFS); maritime special operations; and information operations to capitalize on the strategic agility, operational maneuverability, precise weapons employment, battlespace influence capabilities and persistent sustainment of naval forces. Transformational Sea Strike capabilities are Deliberate and Time Sensitive Strike, and Marine Air Ground Task Force Ship-To-Objective Maneuver. The Short Take-Off and Vertical Landing Joint Strike Fighter, as well as the afore-mentioned EFV, MV-22, and CH-53X, all play a significant role in achieving these capabilities. Our triad of fire support systems - the Expeditionary Fire Support System, the Lightweight 155, and the High Mobility Artillery Rocket System (HIMARS) - also are key to our Sea Strike success.

Sea Base describes the capabilities that allow naval forces to exploit the maneuver space provided by U.S. control of the sea. It includes those capabilities that provide unimpeded mobility and persistent sustainment. Incorporating the complementary characteristics of amphibious, maritime prepositioning, and critical connecting platforms, Sea Base capabilities provide movement without the need for permission or infrastructure, and logistics without fixed and vulnerable stockpiles ashore. The Maritime Prepositioning Force (Future) platform ranks highest in our requirements for achieving these capabilities. Along with the LPD-17 and LHA(R) amphibious assault ships, advanced fast sealift ships such as the T-AKE Auxiliary Cargo and Ammunition ships, and high speed connectors, the MPF(F) provides the needed basis for our future Sea Base capabilities.

FORCEnet, as the integral naval component of the DoD-wide Internet Protocol-based advanced network, will provide the open architecture and building blocks that integrate sensors, networks, decision aids, weapons, warriors, and supporting systems into a highly adaptive, human-centric, comprehensive system that operates from seabed to space and from sea to land. FORCEnet is the enabler for functional capabilities across each of the other three pillars. Our future command and control systems, such as the Common Aviation Command and Control System and the Unit Operations Center, along with advanced communications systems such as the Joint Tactical Radio System, will move us toward a truly integrated C2 architecture.

Organizational Concepts

The Marine Corps is also actively pursuing Transformation in our warfighting organizations. New organizational concepts, such as the Global Concept of Operations and the Expeditionary Strike Groups (ESGs), will positively change the nature of forward deployed operations. These new operational configurations greatly strengthen the naval power provided to the regional commanders and increase the presence of U.S. forces throughout the globe.

Tactical Air Integration of our strike-fighter aircraft assets with those of the Navy will fundamentally change Naval Aviation and provide a more potent, cohesive, and affordable fighting force for both the Navy and Marine Corps.

And, recent operations including Operation Enduring Freedom and Operation Iraqi Freedom reaffirmed the scalability and tailorability of our Marine Air Ground Task Forces. The ability to rapidly combine Marine forces from around the world under a single commander provides joint warfighters with a powerful operational advantage, one that enables the potential of other joint capabilities. As the Navy -

Marine Corps Team pursues innovative methods such as Seabasing to support the Joint Operating Concepts, we are also working to speed the seamless blending of Marine Corps units from around the globe as crises demand. The ability to more rapidly fuse MAGTFs from in and out of theater, along with integrated naval tactical aviation and other elements of the flow-in echelon to support our single battle concept, will require careful consideration of our MAGTF training and readiness cycles. Along with the Navy's transformation in the operational availability of our Expeditionary Strike Groups and Carrier Strike Groups, streamlined scalability of our MAGTFs will provide Joint Force Commanders with superior strategic agility by more rapidly and effectively integrating forward-deployed, prepositioned, and surge forces.

New Technologies

Future concept development relies on Science and Technology (S&T). In close coordination with the Navy, our S&T efforts are focused on achieving the capabilities necessary to realize Seabasing and Ship-To-Objective Maneuver, primarily through the Future Naval Capability program at the Office of Naval Research. Covering such areas as Littoral Combat & Power Projection, Time Critical Strike, and Autonomous Operations, these Future Naval Capabilities directly support our Transformational plans. Other areas, such as ship-to-ship and ship-to-shore connectors, advanced seaborne materials handling, and vertical heavy lift are being aggressively pursued through establishment of solution teams and joint requirements boards.

Experimentation goes hand in hand with both concept development and Science & Technology. Our Sea Viking 04 series of experiments, being conducted by the Marine Corps Warfighting Laboratory in conjunction with Navy and Joint experimenters, seeks to challenge the assumptions and identify the successes of our Seabasing and Ship-To-Objective Maneuver concepts. And, continuing testing of transformational technologies, such as the High Speed Vessel (HSV) SWIFT and Non-Lethal Weapons, will further enhance our operational capabilities. We are also experimenting with Over-The-Horizon/On-The-Move (OTH/OTM) communications that will allow us to influence a much larger, extended battlespace.

However, the majority of our transformational new technologies that support Seabasing have already been planned and programmed within the Department of the Navy. Amphibious assault platforms, such as the LPD-17 and LHA(R), will help ensure that we maintain a forcible entry capability from the sea. The Maritime Prepositioning Force (Future) (MPF(F)) will greatly enhance the operational maneuver and sustainability capabilities of a sea-based MAGTF and represents a critical component of Seabasing. Unlike any other prepositioning ship, the MPF(F) will not be reliant on a port facility, thereby greatly reducing our dependence on international support as well as mitigating area denial capabilities of future adversaries. And, advanced tools for the Marine on the ground, such as the Expeditionary Fighting Vehicle (EFV), the Lightweight 155, and the Expeditionary Fire Support System (EFSS), will all support sea-based operations. Moving towards an all-vertical air capability, future MAGTFs will employ the MV-22 Osprey tilt-rotor aircraft, the Short Takeoff and Vertical Landing (STOVL) Joint Strike Fighter, and the upgraded AH-1Z Cobra/UH-1Y Huey helicopters in future Seabasing operations. Command and control improvements, such as the Common Aviation Command and Control System (CAC2S) and the Unit Operations Center (UOC), will enhance our capability for truly integrated joint command and control under the FORCEnet concept. Finally, our renewed focus on logistics modernization will improve the overall effectiveness of our Marine Air Ground Task Forces as agile, expeditionary forces in readiness. At the heart of this effort is the Global Combat Support System - Marine Corps which supports the Marine Corps Logistics Operational Architecture and will include a single point of entry, web based Portal capabilities, back office tools to assist in the management of the logistics chain and logistics command and control capability to support the operational commanders.

Business and Acquisition Reform

The Marine Corps Business Enterprise Office coordinates implementation of better business practices across all three strategic business processes: providing installation support, acquisition, and logistic/combat service support. The USMC Business Plan implements the Commandant's direction to manage the Business Enterprise of the Marine Corps through application of better business practices and reflects our commitment to exercise resource stewardship by aggressively seeking to maximize our effectiveness and efficiency.

Conclusion

In conclusion, I would like to again thank the members of the Committee for their outstanding, continuing support for the Marine Corps and for the opportunity to address our Transformation initiatives. Our Transformation is focused on new capabilities, based on the overarching concept for Seabasing. Your Marine Corps remains a truly expeditionary force in readiness, and our recent successes were in large part due to your continued support and commitment to maintaining our nation's expeditionary warfighting capability. Your Marine Corps will continue to innovate in order to assure success in the future and be good stewards of the trust and commitment that this Nation has bestowed upon us.

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AND CAPABILITIES
UNITED STATES CONGRESS

STATEMENT OF

LIEUTENANT GENERAL ROBERT W. WAGNER, USA

DEPUTY COMMANDER, UNITED STATES JOINT FORCES COMMAND

BEFORE THE HOUSE ARMED SERVICES COMMITTEE

SUBCOMMITTEE ON TERRORISM, UNCONVENTIONAL THREATS AND CAPABILITIES

UNITED STATES HOUSE OF REPRESENTATIVES

26 FEBUARY 2004

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Mr. Chairman, distinguished Members of the Committee, as the Deputy Commander of U.S. Joint Forces Command, I am honored to testify on our role in the ongoing process of transforming our Armed Forces.

Joint Forces Command is a dynamic command that learns from and works with our Department of Defense partners, the interagency, and coalition partners to transform U.S. warfighting forces and capabilities to ensure our Nation's continued ability to rapidly and decisively conduct military operations. U.S. Joint Forces Command maximizes the Nation's future and present military capabilities by advancing joint concept development and experimentation, identifying joint requirements, ensuring interoperability, conducting joint training, and providing ready forces and capabilities in support of the Combatant Commands.

This last point is particularly important. We have found that many do not understand the role that Joint Forces Command plays in support to our operational commanders. Our Armed Forces fight as a joint force. Our command is responsible for training and deploying fully functional joint task forces with the enabling capabilities to conduct Coherently Joint Operations. If I can state it simply: we do what General Tommy Franks and now General John Abizaid does but on the supply side. In other words, we assemble and deploy the joint forces for the operational commander's use. We also focus on conceiving and developing the future joint force through our Joint Concept Development and Experimentation campaign and do this in close partnership with the joint community made up of Combatant Commanders, Services, Interagencies and Multinational partners.

The transformation we are conducting today is as important as two other key instances of military transformation in the last 30 years. The first was the adoption of the All Volunteer Force in the early 1970s. The second was the Goldwater-Nichols Department of Defense Reorganization Act of 1986. Both were watershed events for the U.S. Armed Forces. Both benefited from the wisdom and support of Congress. Today's transformation is driven by a dramatically changed environment characterized by the emergence of global terrorism, lack of a near term peer competitor, uncertainty, new international partners, and the emergence of opportunities, imperatives, and threats of information age technologies in a globally networked world. We do not know who we might fight, where, when, with whom, or under what geo-political conditions. Our force structure and operating concepts must be responsive to this condition of uncertainty. Our transformation is both difficult and comprehensive, affecting a wide variety of operational functions, processes and organizations that impact not only how the Services integrate with each other but also how our forces interact with other governmental agencies and multinational partners. Most importantly, our transformation effort aims to change the way we conduct operations at the joint operational level of war.

The important questions are not "why" and "whether" but "how" to transform—and what direction and pace we should take to create a force prepared to win the "next" war, anticipate the next contingency, and conduct broad campaigns such as the Global War on Terrorism. Collectively and diligently, we worked on these questions over the last two years and we have benefited from your help.

Let me first describe the continuing transformation in how our Combatant Commanders conduct operations, and in how we organize, train and equip our Service forces. Traditionally, we divided the battlefield into Service sectors. In those sectors, we conducted Service centric operations and we deconflicted their cross boundary operations to ensure non-interference. Services alone were responsible for organizing, training and equipping their separate forces. This template worked against traditional enemy forces that operated in a similar manner. Increasingly, speed, precision, technology and emerging doctrine, allowed us to create cross Service capabilities as we increasingly worked to integrate our separately developed systems, capabilities and training. Operation Desert Storm and operations in the Balkans generated important insights in each of these areas. However, the synergy of joint training and operations in the 12-year period between Desert Storm and Operation Iraqi Freedom; advances in information age technology; and the unprecedented energy, focus and commitment of the Administration, Congress and the Defense Department are producing unprecedented vision, profound cultural change, and truly remarkable networked capabilities.

We envision the future from an information age perspective where operations are conducted in a battlespace, not a battlefield. We are eliminating the artificial boundaries that were established to deconflict Service areas of responsibility and are transforming to a seamless battlespace to allow a Coherently Joint force to create effects throughout the depth of the battlespace, massing of effects when and where we choose versus the massing of personnel and equipment as dictated by geography and boundaries. We are now able to create decision superiority that is enabled by networked systems, new sensors and command and control capabilities that are producing unprecedented near real time situational awareness, increased information availability; and an ability to deliver precision munitions throughout the breadth and depth of the battlespace. Additional capabilities like reliable combat identification and blue force tracking are advancing our ability to instantly deliver precise orders to units of action. Combined, these capabilities of the future networked force will leverage information dominance, speed and precision, and result in decision superiority. My comments will address transforming to achieve this capabilities based joint force.

Our transformation efforts follow directly from the President's transformation agenda as outlined in his Unified Command Plan 2002 that took effect 1 October 2002, and directly support three of the Department of Defense's top priorities:

1. Successfully pursue the Global War on Terrorism
2. Strengthen Joint Warfare Capabilities
3. Transform the Joint Force

The first two priorities address the on going fight against global terror and the need to ensure our joint forces receive the capabilities to conduct those operations. The lessons learned and operational insights gained from these ongoing operations have contributed greatly to our understanding of the future joint environment that we must prepare for.

One of the most instructive insights gained from our operations in Afghanistan and Iraq has been on the characteristics of operational attributes that an adaptive joint force must possess in the modern Battlespace. To dominate this battlespace, the joint force must be "knowledge centric," "coherently joint," "fully networked and collaborative" interdependent in organization and employment and uniquely designed for "Effects-Based Operations." Certainly any future joint force must be capable of conducting rapid, decisive combat operations. But we have found that a future joint force must also apply these operational attributes synergistically across the entire range of military operations. We must be decisive in every operation, not just the high-end portion of war but across the full range of military operations from peacekeeping to stability operations right through to post hostility transition operations. The advent of reliable and secure digital communications, a new level of battlespace awareness borne from joint and combined interoperability, and precision weapons have created the potential for a new type of force. This new coherently joint, networked force must be skilled at finding new ways to exploit and share knowledge, precision, and mobility and to view these qualities as weapon systems rather than relying on mass to achieve both rapid and decisive operations. These operational attributes of knowledge centric, coherently joint, fully networked and Effects-based now form the key elements of our Transformation campaign.

Three operational insights were particularly useful in sharpening our Joint Transformation focus:

1. The U.S. no longer sends an individual Service to conduct major operations but instead deploys its military as a Joint and Coalition Force.
2. The power of a Coherently Joint Force is now greater than the sum of our separate Service, interagency and coalition capabilities.
3. "Speed kills"—not just physical speed, but speed of cognition and situational awareness. It reduces decision and execution cycles, creates opportunities, denies our adversaries options and speeds his collapse.

Arriving at these insights was not easy. They were proven in actual combat and took a significant change in Service culture to accept the message that the power of a coherently Joint Force is far greater than that of any individual Service. When we use the term Joint Operations and Joint Forces, we mean the seamless integration of joint forces, interagencies and multinational and coalition partners.

During Operation Iraqi Freedom, for the first time, we instituted a lessons learned process and deployed a team for the express purpose of gathering joint operational insights on a comprehensive scale, in real time, with a mandate to assist in operations and effect change. The significance here was that our commanders realized that the key to harnessing the full power of Jointness begins at the operational level of command and control which links strategic planning to tactical execution. It is at that level—the level of the Combatant Commander, the Joint Task Force commander and the Joint Air, Land and Sea Component Commanders—where the real work of seamlessly integrating Service capabilities into a Coherently Joint and Combined force takes place.

We examined how well Service and Special Operations forces and methods actually worked together as a joint and combined team, including operations with other U.S. Federal agencies and with our coalition partners.

Our Joint Lesson Learned team was present in Iraq before, during and after major combat operations. They remain there still. Our team had complete access to every facet of General Tommy Frank's—and now General John Abizaid's—operations and, in turn, our lessons learned team provided real time insights and observations that were actually used to improve their adaptive planning. Because we had a dedicated Joint Lessons Learned team embedded at the operational level they were able to help the remarkable US Central Command team improve the effectiveness and precision of their actions. This ties directly back to the point I made earlier that "speed kills." It's not just about weapon systems, but also about a persistent situational awareness.

This type of unfettered access and interplay is simply unprecedented and supports my earlier comment about how Service cultures have changed and are changing to accept a new way of conducting business. General Franks welcomed our Joint Lessons Learned team and General John Abizaid is continuing that close partnership.

Again, this was very different from how we traditionally captured lessons. In previous conflicts, gathering lessons and insights was generally done after-the-fact and the reports were more static, service-centric post mortems than a dynamic diagnosis of ongoing operations. A key aspect about such processes is that you must turn your "lessons learned" into lessons acted upon.

An important observation at the joint operational level we are exploiting in our Transformation efforts is the ability of our joint force to conduct adaptive planning. Joint Force Commanders like Generals Franks and Abizaid will tell you "it's not the plan, it's the plann*ing*." They understand that the ability to plan and adapt to changing circumstances and fleeting opportunities is the difference between success and failure on the modern battlespace. Many leaders of the past understood this—and it remains true today. GEN Tom Franks and his staff practiced this and became masters of adaptive planning. The same is true of GEN John Abizaid's staff.

Essential to the power of adaptive planning and execution is an ability to conduct large scale, vertical and horizontal collaboration. In today's collaborative information environment, every level of command throughout the entire force and including coalition partners can be electronically linked to the Combatant Commander's decision-making process in the appropriate ways. Subordinate commanders and staffs can thus understand the context behind key changes across the battlespace and are fully aware of the commander's intent to guide their actions during specific missions. This does not mean that everyone knows everything that is happening in the battlespace all the time but rather has a clear understanding of the commander's intent and a persistent awareness of the operational environment. In short, the entire joint and combined force is acutely sensitive to nuances in the battlespace and is highly adaptive to change, seizing opportunities as they arise or preventing mishaps before they occur. We used to have this collaboration on the hood of a jeep or tank. Now, with information age technologies, we can collaborate much more extensively all at the same time.

Another key finding that drives our transformation effort is the power achieved by closer integration of our Special Operations and Conventional forces. In Desert Storm, for example, we had about 30 operational detachment teams of Special Forces working separate missions from the conventional force. In Operation Iraqi Freedom, we deployed over 100 operational detachment teams. They were closely wedded to our conventional forces, and in many cases merged the combined capabilities of both ground and air forces. The net result is that we not only had precision munitions launched from air and ground but "precision decision and execution" to guide the integrated Special Forces and Conventional campaign.

In total, what these lessons learned indicate is that our traditional military planning paradigm and perhaps our entire approach to warfare have shifted. The main change, from our perspective, is the shift from deconflicting Service-centric forces designed to achieve victories of attrition to integrating a joint and combined force that can enter the battlespace quickly and conduct decisive operations with both operational and strategic effects.

One general observation that seems to summarize this shift, which has been going on since Desert Storm, is based on what we have come to characterize as the competing notions of Overwhelming Force versus Overmatching Power.

As an example, in Desert Storm, our military thinking was to field Overwhelming Force to ensure victory. Certainly, Overwhelming Force requires well-trained and well-equipped forces, which are as important today as they were back then, but at that time, the emphasis was on numbers.

What our observations in Operation Iraqi Freedom tell us is that there is another approach to modern warfare. We like to characterize this approach as the employment of Overmatching Power.

Under this construct, the emphasis is no longer just on numbers which remain important, but rather on harnessing all the capabilities that our

Services bring to the battlespace in a coherently joint way; the point now is on the effectiveness of joint capabilities.

What we are suggesting is that advances in technologies, coupled with innovative operational warfighting concepts that are glued together by a new joint culture, are enabling a new level of coherent military operations that we have never seen or been able to achieve before.

The new approach is the application of Overmatching Power. It is based on the combined output of new ways of joint warfighting, greater integration of conventional and special operations forces, the use of old and emerging capabilities by new methods integrated through new schemes of joint training.

The Process and Product of Joint Transformation

Today we clearly recognize that we have a unique opportunity to develop powerful asymmetric capabilities that will enable our joint forces to conduct Effects-based Operations in a collaborative environment using Network-Centric capabilities. These are the attributes of a Coherently Joint Force and the aim of our transformation efforts.

To achieve these attributes, Joint Forces Command has established close, collaborative partnerships with the Defense Department, Combatant Commanders, Services, Service Development and Training Centers, the Interagency community and with Multinational partners to develop an adaptive, dynamic change process that is comprehensive, that uses joint operational concepts to drive improvements in joint warfighting, that will inform the acquisition process and that integrates the lessons we have learned in near real time. Delivering innovative products and processes is based upon four closely wedded approaches to change:

1. Joint Concept Development and Experimentation
2. Joint Force Training and Education
3. Joint Integration and Interoperability

4. Joint Force Deployment, Employment and Sustainment

Joint Concept Development and Experimentation

Joint concept development and experimentation is an important catalyst for transforming military capabilities and delivering real innovation.

Our Joint concept development and experimentation process focuses on developing two distinct products as the result of a two-path strategy that delivers innovation. The first pathway consists of the prototypes that evolve from concept experimentation in concert with our partners in the joint community. These prototypes are designed to improve near-term joint warfighting capabilities. The second pathway consists of collaborative experimentation with new concepts and capabilities that focus on the future operational environment - trying to discover the "next generation" of capabilities.

Prototypes on which later stages of development are based or judged have inherent attributes that make them valuable tools in promoting and sustaining transformation. The process of prototyping, including modeling and simulation, is crucial to refining concepts and bringing transformational ideas to physical form. It also provides a means to rapidly deliver near-term warfighting capabilities to the joint warfighter. Prototyping experiments take place within combatant command exercise programs, not in the lab. That way we find out from operational commanders what works and what does not, and we find out fast. We get a secondary benefit from prototyping within combatant command exercises: we help promulgate a culture of innovation.

An example of an organizational prototype is the Standing Joint Force Headquarters, or SJFHQ. The SJFHQ will allow for the rapid stand up of a fully functional operational Joint Task Force. The SJFHQ can bring to a Service Headquarters a regionally focused joint team skilled in Effects Based Operations, Systems of Systems Analysis, Operational Net Assessment, Joint

Interagency Coordination, Joint Fires, and Joint Logistics Common Relevant Operating Picture all enabled with an established, Collaborative Information Environment (CIE). The CIE is designed to quickly provide situational awareness of the adversary, the battlespace and the Joint Force. The CIE allows for persistent, robust situational awareness of the operational environment and delivers top-down clarity of the commander's intent. What results is a joint force that is empowered to act and exploit opportunities because it has unity of effort at the top and trust and confidence throughout the force.

A material prototype that has already enabled our operational forces to establish a Collaborative Information Environment is the Joint Enroute Mission Planning and Rehearsal System-Near Time (JEMPRS-NT) that enables the Commander and staff to maintain continuous command, control, and situational awareness enroute. Other prototypes that we are delivering or plan to deliver in the near future include: a Joint Fires capability; improved Joint Battle Management Command and Control capabilities; and a Joint Interagency Coordination Group capability that will bring the capabilities of the interagency community to bear in joint operations.

While the joint prototype pathway focuses on improving current military capability, the joint concept development pathway helps us improve future warfighting capabilities. It is in this pathway where the close partnership between Joint Forces Command, the Services, combatant commanders, as well as interagency and multinational partners can greatly affect the future force development and acquisition process. Collaboration in concept development also insures our future concepts are "conceived joint," the first step toward being "born joint."

A key first step, and perhaps the most important in our concept development approach was to establish a Common Joint Context where we can move our understanding of the future warfight from a stovepipe Service view to a commonly shared joint understanding of the future environment where all the Services must operate as a Coherently Joint team.

In establishing this Common Joint Context, we have actively partnered with each of the Services and created co-sponsored wargames to assist them in embedding a joint context in their concept development and transformational Wargames. Furthermore, we have used these co-sponsored games as venues to advance co-evolution of service, joint, multinational and interagency concepts. This is truly a revolutionary change for each Service, JFCOM as well as the interagency and multinational partners are experimenting together just as we fight. The Common Joint Context in our co-sponsored games allows Services to examine for themselves how well their projected capabilities can operate in a Joint, and when appropriate interagency and multinational, environment. This process is a fundamental shift in our existing force development paradigm. The Services are now starting their force development programs from a common joint perspective vice "tacking jointness" on at the end of the process.

In May 2003, for instance, then Army Chief of Staff General Eric Shinseki and the Commander of Joint Forces Command, Admiral Ed Giambastiani, co-hosted the first ever Joint/Army wargame called Unified Quest 03, with an embedded Common Joint Context. Then the Chief of Naval Operations, Admiral Vern Clark, and Admiral Giambastiani co-hosted the first-ever Joint/Navy Wargame called Unified Course 04 in October 2003. This year General John Jumper will co-host the first-ever Joint/Air Force wargame called Unified Engagement VII, and General Mike Hagee, Commandant of the Marine Corps, will co-host Joint Urban Warrior. After each of these watershed events, senior leaders will gather to collectively learn from the insights, observations and implications produced by these intellectual exercises. In the early fall, General Schoomaker will also co-host the second Joint/Army Wargame called Unified Quest 04.

In partnership with the joint community, this month we are expanding the experimentation arena to the interagency communities by co-hosting with the National Reconnaissance Office, Strategic Command and Special Operations Command a path-breaking Joint/Interagency event called Thor's Hammer. This event, which is set in a global crisis in the next decade, aims to investigate and improve interagency processes in the areas of space-based information management and integration. There are over 70 organizations participating including the Departments of Defense, State and Homeland Security and the Central Intelligence Agency.

In collaboration with our NATO Allies, we also just concluded our third major Multinational Experiment at our Suffolk facility. In that event, we investigated our ability to share information and conduct Effects-Based Planning in a future coalition environment. I should add that though this particular event is the third in a series of experiments with selected multinational partners, this is the first time that NATO has participated as an Alliance through Allied Command Transformation, a powerful new partner for us and symbolic of our Allies growing commitment to Defense transformation.

This process of experimenting in co-sponsored wargames, and detailed coordination with the Services, Joint Staff and Defense Department, has produced a set of future warfighting concepts drafts which are now before the Joint Chiefs. These include 2015 concepts for major combat operations, stability operations, joint forcible entry operations, and joint urban operations. Drafts of two other concepts, Strategic Deterrence and Homeland Defense, written by United States Strategic Command and Northern Command respectively are also before the Joint Chiefs for their consideration. This family of concepts, and the Joint Operations Concept that provides the foundation for them all, combined with the Defense Department's roadmaps, will eventually help change our investment strategies, force development methodologies, and acquisition systems from the previous threat-based approach to a capabilities-based approach. This change is yet another way we are advancing the transformation of the joint force.

U.S. Joint Forces Command is working in close partnership with U.S. Transportation Command to develop and conduct experiments on an operational concept called the Joint Deployment, Employment and Sustainment (JDES) concept. The central idea of JDES is to align our deployment and sustainment methodologies with our employment concepts. We envision employing our forces coherently, distributed widely within the battlespace, executing decentralized and non-linear operations simultaneously in multiple locations. JDES will bring our deployment and sustainment in line with these employment concepts.

Our joint concept development and experimentation will continue to refine these and other concepts in the coming year. Just as importantly, we intend to leverage our close partnerships throughout the joint community and industry to speed the delivery of innovative capabilities to the Joint Warfighter.

Joint Force Training and Education

On the training front, we are delivering a Joint National Training Capability to improve the ability of U.S. forces to fight effectively as a joint and combined team. It is important to note that the Services did a marvelous job in launching the first wave of Training Transformation when they established training capabilities like the Navy's Top Gun, the Air Force's Air Warrior and Red Flag and the Army's National Training Center.

What the joint community is striving to do with the JNTC is start the second wave of training transformation. We will link the Service ranges with forces around the country and in time, around the world to a common joint environment at the operational level. In a sense, this new training transformation is producing "Born Joint Training" that seamlessly brings together a combination of live, virtual and constructive venues to create a common joint training environment that leverages rather than duplicates Service training. A key element is that we avoid any additive requirements to Service training while maximizing joint training within a common operational environment.

On Admiral Giambastiani's recent visit to the first JNTC event, an Army major participating in the exercise summed up for the Admiral the value of this new capability. He had fought with the 3rd Infantry Division in Operation Iraqi Freedom and had participated in many training rotations. When Admiral Giambastiani asked what he thought was different about the JNTC exercise, the Major replied: "Well sir, the only time we ever get to play with all the 'toys' is in war. Now we get to play with everything in training." This is just one example of how the JNTC is delivering innovation to a transforming joint force. It is also worthwhile to return to an earlier point: No Service will go to war alone. We will fight as a Joint Force, so it is imperative that we train and educate our servicemen and women as a Joint Force.

On the education front, Joint Forces Command is partnering with the National Defense University to establish a Joint curriculum to inculcate the new methods of Coherently Joint Operations, building upon Service-level training and education. We have also expanded the Capstone course for our new general and flag officers and are drawing up plans for instituting a 3-Star course to "deepen our bench" of prospective JTF commanders. Training is important, but Joint Training and Education is more important.

Joint Integration and Interoperability

To accelerate the Joint Interoperability and Integration of Service-provided warfighting capabilities, our Joint Interoperability and Integration (JI&I) office continues to deliver materiel and non-materiel solutions to interoperability challenges by working closely with all Combatant Commanders, Services and Agencies to identify and resolve joint warfighting deficiencies. Our Joint Enroute Mission Planning and Rehearsal-Near Time capability, described earlier, is just one example.

Joint Forces Command, in partnership with the joint community, is leading an important initiative to develop a common command and control capability for the joint warfighter called Joint Battle Management Command and Control (JBMC2). The JBMC2 capability will enable the future Joint Force to plan, coordinate, execute and assess effects-based operations in a coherently joint and net-centric manner. Our leading transformational efforts in JBMC2 include the Standing Joint Force Headquarters, Collaborative Information Environments, standard Deployable Command and Control capabilities, netted Joint Force initiatives, integrated Joint Fires, and the Joint National Training Capability. These efforts are fundamental to achieving the capabilities promised in the Net-Centric Warfare concept, and we are on our way to providing them within the next five years. Each Service is working closely with Joint Forces Command through initiatives such as the Air Force led Family of Interoperable Operational Pictures (FIOP), the Army led Single Integrated Air picture (SIAP), and the Navy led Deployable Joint Command and Control System. Our efforts will soon include the Single Integrated Ground Picture (SIGP) and Single Integrated Maritime Picture (SIMP) under the Navy's ForceNet construct. These efforts amount to a "systems-of-systems" approach to command and control and integrates the initiatives of the Services in a "born joint" way.

Another capability that we are working in partnership with the Services to innovate is to shift away from an exclusive reliance on Service organic fires towards the concept of Joint Fires. Under this concept and still developing capability, warfighters will bring to bear the right precision fires, at the right time and in the right place from a range of joint capabilities instead of just service organic fires. Here again, an important operational insight from OIF confirms the proper direction of this effort: warfighters simply do not care where capabilities come from, they just care that it is timely, responsive, integrated and effective.

Joint Force Provider

A primary Joint Forces Command responsibility is to provide joint forces in response to Combatant Commanders' requirements for operational capabilities. In coordination with our Service Components and the Combatant Commanders, JFCOM identifies the right active and reserve component forces in order to tailor and deploy the right Joint Force Packages. Additionally, in the last two years, Joint Forces Command has stood up, trained and deployed more Joint Task Forces (JTFs) than it did over the previous ten years. This is a critical transformational function in that we are able to transition from a condition where Services alone organize, train and equip Service forces to where a Joint Command performs some of those same functions to produce a fully functional Joint Force. We performed these functions in conjunction with the Army trainers from Fort Leavenworth for III Corps prior to their recent deployment to Iraq through Joint mission rehearsal exercises, staff assistance visits, and leader development training. The Joint National Training Capability is another clear example of how the joint community, with full Service partnership, is advancing along the Joint training continuum.

We are now in the initial process of developing and preparing the replacement HQ for Combined Joint Task Force 7 in Iraq and have assisted Central Command with other JTFs including JTF-180 (Afghanistan); JTF-IV (post hostilities—JTF Iraq) and with a CENTCOM Forward HQ (with functional components). In partnership with European Command, we assisted with JTF Horn of Africa and with SETAF (Southern European Task Force) during Agile Response 03. In support of Pacific Command's exercise/experiment Terminal Fury 03, Joint Forces Command assisted in the standup of JTF 519. Other JTFs that we assisted in the standup and deployment to Combatant Commands included JTF-Civil Support to Northern Command; JTF-Guantanamo to Southern Command; and a STRATCOM Global Strike Division to Strategic Command.

Summary

In closing, like the military as a whole, Joint Forces Command has transformed itself to serve as the nation's agent for transformation even as we have been deeply involved in supporting operations around the world. The divestiture of our geographic area of responsibility has enabled this Command to focus on our new area of responsibility: the future. With your help, we are receiving the resources and authority to carry out our new mission and are now helping to deliver:

- Trained and ready joint forces to the Regional Combatant Commanders
- Coherently-joint capabilities and operational methods to the joint warfighter of today
- A common joint context to Service experimentation programs that will lead to new "born joint" capabilities of tomorrow
- The first steps in alignment of Joint Battle Management Command and Control programs across the Department of Defense
- Integration of Interagency and Multinational capabilities into the change process
- And the beginnings of a new culture of joint transformation

We are convinced that improved interoperability is crucial, to ensure near-term fusion of mission capabilities across the joint services, allied, and interagency partners. We have emphasized the need for operational lessons learned and experimentation to drive the development of new joint doctrine, new concepts, and new integrated architectures to properly defined and influence Service and Agency capabilities of the future.

Transformation is underway. Our efforts are accelerating these trends. We look forward to working with you to provide our Soldiers, Sailors, Airmen and Marines the joint capabilities they need today and the transformational capabilities our Joint Force will require in the future. We are enthusiastic about our plan for the future and extend to each of you an invitation to visit Joint Forces Command and our Service Components to see transformation in action.

Thank you for your continued support of our Soldiers, Sailors, Airmen and Marines and of our Joint Warfighters, our Combatant Commanders.

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